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Water Resources Data for Kansas

Part 1. Surface Water Records

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Prepared in cooperation with the State of Kansas
and with other agencies

United States Department of the Interior
Geological Survey - Water Resources Division

Water Resources Data for Kansas

1968

Part 1: Surface Water Records

Prepared in cooperation with

Kansas Water Resources Board
State Highway Commission of Kansas
Kansas State Board of Agriculture, Division of Water Resources
City of Wichita
Corps of Engineers, U. S. Army
Bureau of Reclamation, Department of the Interior

Copies of this report may be obtained from
District Chief, Water Resources Division
U. S. Geological Survey
P. O. Box 768
Lawrence, Kansas, 66044

1969

Water resources records, 1968, for Kansas are in the following reports of the U.S. Geological Survey:

1. Water Resources Data for Kansas
   Part 1: Surface Water Records

2. Water Resources Data for Kansas
   Part 2: Water Quality Records

CALENDAR FOR WATER YEAR 1968

OCTOBER 1967

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

NOVEMBER 1967

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

DECEMBER 1967

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

JANUARY 1968

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

FEBRUARY 1968

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29		

MARCH 1968

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

APRIL 1968

S	M	T	W	T	F	S
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14	15	16	17	18	19	20
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MAY 1968

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
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JUNE 1968

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9	10	11	12	13	14	15
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30						

JULY 1968

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

AUGUST 1968

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

SEPTEMBER 1968

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

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WATER RESOURCES DATA FOR KANSAS, 1968

Part 1. Surface Water Records

INTRODUCTION

The surface-water records for the 1968 water year for gaging stations and partial-record stations within the State of Kansas are given in this report.[1/] The records were collected and computed or reviewed by the Water Resources Division of the U. S. Geological Survey, under the direction of R. J. Dingman, district chief, Kansas District.

Through September 30, 1960, the records of discharge and stage of streams and contents and stage of lakes or reservoirs were published in an annual series of U. S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Since 1951 there have been 20 volumes in the series; each volume covered an area whose boundaries coincided with those of certain natural drainage areas. The records in Kansas were contained in Parts 6B and 7 of that series.

Beginning with the 1961 water year, streamflow records and related data have been released by the Geological Survey in annual reports on a State-boundary basis. Distribution of these basic-data reports is limited and primarily for local needs. Records will be published in Geological Survey water-supply papers at 5-year intervals.

1/ For convenience there are also included records for a few pertinent gaging stations in bordering States.

COOPERATION

Cooperative agreements between the U. S. Geological Survey and organizations of the State of Kansas for the systematic collection of streamflow records began in 1895. Organizations that supplied data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

State Water Resources Board, K. S. Krause, executive director.

State Highway Commission, E. E. Wilkinson, bridge engineer.

State Board of Agriculture, Division of Water Resources, R. V. Smrha, chief engineer.

City of Wichita, M. S. Mitchell, assistant superintendent of public works maintenance.

Corps of Engineers, U. S. Army.

Bureau of Reclamation, Department of the Interior.

Assistance was also furnished by the Environmental Science Services Administration of the Department of Commerce.

DEFINITION OF TERMS AND ABBREVIATIONS

The terms of streamflow and other hydrologic data, as used in this report, are defined as follows:

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is obtained.

Partial-record station is a particular site where limited streamflow data are collected systematically over a period of years for use in hydrologic analyses.

Gage height (g.ht.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Cubic foot per second (cfs) is the rate of discharge of a stream whose channel is 1 square foot in cross-sectional area and whose average velocity is 1 foot per second.

Acre-foot (ac-ft) is the quantity of water required to cover an acre to the depth of 1 foot and is equivalent to 43,560 cubic feet.

Cfs-day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.983471 acre-feet, or 646,317 gallons, and represents a runoff of 0.0372 inch from 1 square mile.

Stage-discharge relation is the relation between gage height and the amount of water flowing in a channel, expressed as volume per unit of time.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, a long reach of the channel, or an artificial structure.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

The drainage area of a stream at a specified location is that area, measured in a horizontal plane, which is so enclosed by a topographic divide that direct surface runoff from precipitation normally would drain by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBERS

Stations are listed in the same downstream order used in the water-supply papers. Records are listed in a downstream direction along the main stem with all stations on a tributary entering above a main-stem station listed before that station. If a tributary enters between two main-stem stations, it is listed between them. A similar order is followed listing stations on first rank, second rank, and other ranks of tributaries. To indicate the rank of any tributary on which a gaging station is situated and the stream to which it is immediately tributary, each indention in the listing of gaging stations in the table of contents of this report represents one rank. This downstream order and system of indention show which gaging stations are on tributaries between any two stations on a main stem and the rank of the tributary on which each gaging station is situated.

As an added means of identification, each gaging station and partial-record station has been assigned a station number. The numbers have been assigned in the same downstream order used in the annual series of water-supply papers. In assigning station numbers, no distinction is made between partial-record stations and continuous-record gaging stations, so that the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Gaps are left in the numbers to allow for new stations that may be established; hence the numbers are not consecutive.

The complete 8-digit number for each station, such as 07-1443.00 includes the part number "07" plus a 6-digit number. In this report, the nonessential zeros are not shown. For example, the complete number 07-1443.00 would appear as 7-1443, just to the left of the station name. In this report, the records are listed in downstream order by parts. All records for a drainage basin encompassing more than one State could be arranged in downstream order by assembling pages from the various State reports by station number to include all records in the basin.

EXPLANATION OF DATA

The base data collected at gaging stations consist of records of stage and measurements of discharge. In addition, observations of factors affecting the stage-discharge relation, weather records, and other information are used to supplement base data in determining the daily flow. Records of stage are obtained from a water-stage recorder that gives a continuous chart of fluctuations (for digital recorders, a tape punched at 15- or 60-minute intervals) or from direct readings on a nonrecording gage. Measurements of discharge are made with a current meter by the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in Water-Supply Paper 888 and are also outlined in standard text books on the measurement of stream discharge.

Rating tables giving the discharge for any stage are prepared from stage-discharge relation curves defined by discharge measurements. If extensions to the rating curves are necessary to define the extremes of discharge, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, or computation of flow over dams or weirs), velocity-area studies, and logarithmic plotting. The application of the daily mean gage height to those rating tables gives the daily mean discharge, from which the monthly and the yearly mean discharge are computed. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by

the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is in effect the shifting-control method.

At some gaging stations the stage-discharge relation is affected by backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in determining discharge. Information required for determining the slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage. For such stations, the rate of change in stage is used as a factor in determining discharge.

At some gaging stations the stage-discharge relation is affected by ice during the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of the gage-height record and occasional winter discharge measurements, consideration being given to the available information on temperature and precipitation, notes by gage observers and engineers, and comparable records of discharge for other stations in the same or nearby basins.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute the daily discharge. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, adjoining good record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins.

The data in this report generally comprise a description of the station and a table showing the daily discharge and monthly and yearly runoff of the stream. Records are published for the water year which begins on October 1 and ends on September 30. A calendar for the 1968 water year is shown on page III to facilitate finding the day of the week for any date.

The description of the station gives the location, drainage area, records available, type and history of gages, average discharge, extremes of discharge, and general remarks. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage given under "Location" for some stations, is that determined and used by the Corps of Engineers unless otherwise noted. Under "Records available" are given periods for which there are published records for the

present station or for stations generally equivalent to the present one. Under "Gage" are given the type of gage currently in use and the datum of the gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of records available. The references to "datum of 1929" and adjustments of other years are to the datum and adjustments of the U. S. Coast and Geodetic Survey. Under "Average discharge" is given the average discharge for the number of years indicated. It is not given for stations having fewer than five complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. Under "Extremes" are given the maximum discharge and gage height, the minimum discharge if there is little or no regulation, the minimum daily discharge if there is extensive regulation (also the minimum discharge if useful), and the minimum gage height if it is significant. In the first paragraph, the data given are for the complete current water year unless otherwise specified. In the second paragraph, the data given are for the periods of record within the calendar year dates in the heading (not necessarily for the complete years indicated by the heading dates). Reliable information concerning major floods that have occurred outside the period of record is given in the third or last paragraph under "Extremes." Unless otherwise qualified, the maximum discharge corresponds to the crest stage obtained by use of a water-stage recorder, a crest-stage indicator, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur at the same time as the maximum discharge, it is given separately. Information pertaining to the accuracy of the records and to conditions which affect the natural flow at the gaging station is given under "Remarks."

The daily table gives the discharge corresponding to the daily mean gage height unless there are large or rapid changes in discharge during the day. For days having large or rapid changes, discharge for the day is computed by averaging the mean discharges for several parts of a day. For digital recorders, the daily mean discharge is always the average of the discharge at each punched reading.

In the monthly summary below the daily table, the line headed "Total" gives the sum of the daily figures; it is the total cfs-days for the month. The line headed "Mean" gives the average flow in cubic feet per second during the month. Runoff for the month is expressed in acre-feet (line headed "Ac-ft").

In the yearly summary below the monthly summary, the figures of maximum are the maximum daily discharges, not the momentary discharges when the water was at crest stage. Likewise, the minimums in this summary are the minimum daily discharges.

Peak discharges and the times of their occurrence and corresponding gage heights for most stations are listed below the table of daily and monthly discharge. All independent peaks above the selected base are given. The base discharge, which is given in parentheses, is selected so that an average of about three peaks a year can be presented. Peak discharges are not published for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard (or daylight savings) time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330.

In a general footnote, introduced by the word "Note," certain periods are indicated for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For gaging stations on lakes and reservoirs the data presented comprise a description of the station, a table showing daily stage, contents in acre-feet at the end of each month, and change in contents in acre-feet for each month. A skeleton table of capacity at given stages is published each year for all reservoirs and may be used, with interpolation, to determine daily contents.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretation of records.

For many gaging stations the figures of daily mean discharge during the year are shown to the nearest hundredth of a cfs for discharges less than 1 cfs. This has been done as a matter of uniformity in computer programs and should not be construed to indicate an accuracy greater than that used in previous years.

The station description under "Remarks" gives the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily

discharges are within 5 percent; "good," within 10 percent; and "fair," within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents.

OTHER DATA AVAILABLE

Data collected at partial-record stations and at miscellaneous sites are given at the end of this report. Data for partial-record stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are given in special tables after the list of measurements at crest-stage partial-record stations.

Information of a more detailed nature than that published for most of the gaging stations, such as discharge measurements and recorder charts or nonrecording-gage readings, is on file in the district office (P. O. Box 768, Lawrence, Kans.). All gaging-station records in the State through 1965 have been processed with an electronic computer to give: (1) the number of days in each year that the daily discharge was between selected limits (duration tables), (2) the lowest mean discharge for selected numbers of consecutive days in each year, and (3) the highest mean discharge for selected numbers of consecutive days in each year. These data (1) and (2) have been analyzed to show flow-duration, low-flow frequency, and flood volume relations for the State.

At or near some gaging stations, water-quality records also are collected. Data are obtained on the chemical quality of the stream water, on water temperature, on suspended-sediment concentration, and on the particle-size distribution of suspended sediment and bed material. These data are given in Part 2 of this report. Under the "Remarks" paragraph of the gaging-station description, reference is made to water-quality records collected on a regular basis.

6-8140. Turkey Creek near Seneca, Kans.

Location.--Lat 39°56'52", long 96°06'30", on west line sec. 20, T. 1 S., R. 12 E., at downstream side of highway bridge, 2 miles downstream from Clear Creek, 5 miles upstream from Nemaha River, and 8 miles northwest of Seneca, Nemaha County.

Drainage area.--276 sq mi.

Records available.--October 1948 to September 1968. Monthly discharge only for some periods, published in WSP 1310.

Gage.--Digital water-stage recorder. Altitude of gage is 1,160 ft (from topographic map). Prior to Oct. 19, 1956, graphic water-stage recorder (occasional operation only) and wire-weight gage on former channel 400 ft south of present site at present datum. Oct. 19, 1956 to June 15, 1957, wire-weight gage at highway bridge 1.2 miles upstream at different datum. June 16, 1957 to Mar. 27, 1958, wire-weight gage and Mar. 28, 1958 to Apr. 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--20 years, 126 cfs (91,220 acre-ft per year).

Extremes.--Maximum discharge during year, 1,510 cfs July 16 (gage height, 11.72 ft); minimum, 0.05 cfs July 15.
1948-68: Maximum discharge, 20,400 cfs June 29, 1965 (gage height, 24.70 ft); no flow at times in 1956-57.

Remarks.--Records poor.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	12	11	8.0	25	15	6.9	7.2	38	.37	14	148
2	25	13	11	5.5	29	15	7.4	6.6	16	.33	15	17
3	26	14	11	5.5	24	13	31	6.0	8.6	.32	15	6.3
4	29	12	11	6.0	22	13	31	5.6	6.2	.36	7.9	3.6
5	213	12	11	6.5	19	13	22	5.0	5.0	465	7.4	3.0
6	256	11	10	5.5	18	12	17	5.5	4.1	8.2	6.1	3.5
7	888	11	10	5.0	16	12	15	7.9	3.7	3.0	5.8	2.8
8	338	12	9.6	5.5	17	12	13	7.9	3.0	1.5	5.7	2.2
9	68	12	9.6	6.0	17	12	12	6.5	3.0	.77	5.4	2.0
10	36	12	12	7.0	16	11	11	6.2	176	.31	169	1.7
11	27	13	14	6.5	21	10	10	6.6	67	.23	808	1.7
12	23	12	15	6.0	18	10	9.5	8.0	9.0	.18	74	1.5
13	20	11	14	6.0	18	9.7	10	8.4	5.3	.13	21	1.5
14	20	11	12	6.0	18	9.7	11	28	6.4	.08	14	1.5
15	172	11	10	7.0	14	9.4	11	21	4.8	.05	11	1.6
16	38	11	11	8.0	17	9.2	11	15	4.2	629	8.5	1.1
17	21	11	15	9.0	19	9.1	11	11	3.9	27	145	.82
18	16	10	16	12	17	9.9	11	7.4	3.5	5.7	27	.54
19	16	10	16	15	14	9.3	11	5.9	3.1	3.4	78	.40
20	15	11	17	17	14	8.6	11	5.4	2.6	2.4	66	.40
21	15	11	12	40	13	8.6	11	4.9	2.1	1.9	14	.32
22	14	11	11	116	12	8.5	12	6.1	1.8	1.6	11	.20
23	14	11	10	152	12	8.3	12	8.2	1.5	20	6.6	.32
24	14	11	11	99	12	8.5	12	7.0	1.4	301	6.6	.24
25	13	11	13	70	12	8.4	11	7.1	1.3	26	7.7	.28
26	12	10	12	57	13	8.4	13	12	1.4	8.9	5.6	.16
27	13	8.5	12	51	13	8.0	10	12	1.1	9.2	4.6	.20
28	12	8.0	13	42	14	8.3	9.0	9.6	1.1	11	4.6	.24
29	11	10	13	36	13	7.8	8.4	7.2	.79	4.9	5.9	.28
30	11	11	13	28	------	6.9	8.0	6.1	.51	227	9.8	.36
31	11	------	11	28	------	6.6	------	11	------	42	14	------
TOTAL	2,407	334.5	377.2	872.0	487	311.2	379.2	272.3	386.40	1,801.83	1,594.2	203.76
MEAN	77.6	11.2	12.2	28.1	16.8	10.0	12.6	8.78	12.9	58.1	51.4	6.79
MAX	888	14	17	152	29	15	31	28	176	629	808	148
MIN	11	8.0	9.6	5.0	12	6.6	6.9	4.9	.51	.05	4.6	.16
AC-FT	4,770	663	748	1,730	966	617	752	540	766	3,570	3,160	404

CAL YR 1967 TOTAL 26,950.5 MEAN 73.8 MAX 6,040 MIN 1.0 AC-FT 53,460
WTR YR 1968 TOTAL 9,426.59 MEAN 25.8 MAX 888 MIN .05 AC-FT 18,700

PEAK DISCHARGE (BASE, 3,100 CFS).--NO PEAK ABOVE BASE.

6-8156. Wolf River near Hiawatha, Kans.

Location.--Lat 39°48'28", long 95°28'14", on west line sec. 12, T. 3 S., R. 17 E., at downstream side of highway bridge 4 miles southeast of Hiawatha, Brown County.

Drainage area.--41 sq mi, approximately.

Records available.--March 1961 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 946.85 ft above mean sea level, datum of 1929. Prior to Apr. 30, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--7 years, 23.4 cfs 16,940 acre-ft per year).

Extremes.--Maximum discharge during year, 40,000 cfs Aug. 9 (gage height, 30.02 ft) from rating extended above 4,000 cfs on basis of slope-area measurements at gage heights 26.34 and 22.20 ft and a field survey of peak flow; no flow Aug. 6-8.
1961-68: Maximum discharge, that of Aug. 9, 1968; no flow at times during August 1964, 1968.

Remarks.--Records good except those for winter months, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.82	5.6	3.8	3.0	9.0	3.8	2.7	2.5	7.8	.68	16	4.9
2	.65	8.1	3.8	3.0	8.0	3.6	3.6	2.2	2.6	.54	210	4.0
3	.49	13	3.4	2.7	8.0	3.5	11	1.7	1.6	.51	23	10
4	.43	6.5	3.5	2.7	7.5	3.7	5.4	1.5	1.2	.47	1.7	320
5	175	4.6	3.4	3.0	7.0	4.0	3.5	1.4	.98	.44	.25	13
6	164	4.3	3.5	2.5	6.0	3.6	3.5	1.9	.85	.44	0	6.9
7	1,090	4.1	3.3	2.0	5.8	3.5	3.5	5.6	.72	.43	0	5.6
8	33	4.1	3.2	2.5	5.4	4.2	3.1	5.8	1.6	.40	0	4.6
9	11	4.0	3.3	3.0	5.2	4.0	2.8	2.5	.64	.32	6,330	3.9
10	8.2	4.0	4.3	3.0	5.0	3.5	2.8	2.1	1.9	.26	1,270	3.7
11	6.7	4.4	4.9	2.7	4.5	3.1	2.8	5.0	26	.23	200	3.6
12	5.8	3.5	4.2	2.6	4.0	2.8	2.4	2.3	4.2	.20	46	3.5
13	5.2	3.4	3.3	2.5	4.1	3.2	2.4	5.3	1.3	.18	26	3.4
14	4.4	3.4	2.4	2.5	4.7	3.2	3.8	32	.96	.16	18	3.3
15	7.7	3.6	2.5	3.0	5.3	2.8	3.0	8.7	.75	.43	13	3.1
16	5.9	3.5	2.9	3.5	4.5	2.8	2.7	2.9	.84	1,600	10	3.3
17	4.4	3.7	5.0	4.0	4.0	2.9	5.3	1.9	.82	38	8.1	4.5
18	3.7	3.2	5.9	4.5	4.0	3.1	3.2	1.7	.62	5.5	15	7.0
19	3.4	2.9	5.7	6.0	4.0	2.8	3.5	1.7	388	1.9	8.0	7.1
20	3.2	3.3	4.8	10	4.0	2.3	5.0	1.4	23	.86	6.0	5.2
21	3.2	3.4	3.9	90	3.5	2.6	3.1	1.4	9.5	.58	5.3	3.7
22	3.1	3.4	3.2	50	3.5	2.5	3.8	5.0	5.4	.30	4.9	3.4
23	2.6	3.4	2.3	30	4.0	2.5	24	7.4	3.4	.30	4.7	4.6
24	2.9	3.6	3.1	20	4.5	3.2	8.1	3.5	3.3	7.2	8.7	7.0
25	2.8	3.6	4.0	16	4.8	3.4	4.5	4.9	2.9	1.8	5.2	3.5
26	3.3	3.2	3.2	14	5.9	3.3	4.8	6.1	2.1	2.3	4.2	3.1
27	5.6	2.8	3.2	13	4.5	3.4	3.7	3.3	1.7	103	3.7	2.9
28	4.0	2.8	3.9	12	4.0	2.9	3.5	2.1	1.4	2.4	3.6	2.6
29	3.8	3.8	3.9	11	4.0	2.9	2.9	1.6	1.2	.30	3.8	2.4
30	4.3	4.4	3.8	10	------	3.1	2.7	1.4	.95	352	5.5	2.4
31	3.9	------	3.5	9.5	------	2.9	------	14	------	278	7.8	------
TOTAL	1,573.49	127.6	115.1	344.2	148.7	99.1	137.1	140.8	498.23	2,400.13	8,258.45	456.2
MEAN	50.8	4.25	3.71	11.1	5.13	3.20	4.57	4.54	16.6	77.4	266	15.2
MAX	1,090	13	5.9	90	9.0	4.2	24	32	388	1,600	6,330	320
MIN	.43	2.8	2.3	2.0	3.5	2.3	2.4	1.4	.62	.16	0	2.4
AC-FT	3,120	253	228	683	295	197	272	279	988	4,760	16,380	905

CAL YR 1967: TOTAL 10,175.55 MEAN 27.9 MAX 2,290 MIN .20 AC-FT 20,180
WTR YR 1968: TOTAL 14,299.10 MEAN 39.1 MAX 6,330 MIN 0 AC-FT 28,360

PEAK DISCHARGE (BASE, 1,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	0230	20.16	3,380	8-09	0515	30.02	40,000
6-19	0715	15.09	1,570	8-10	1745	20.77	3,680
7-16	1015	22.55	4,940				

6-8180. Missouri River at St. Joseph, Mo.

Location.--Lat 39°45'10", long 94°51'28", in sec. 17, T. 57 N., R. 35 W., on downstream side of left pier of St. Joseph & Grand Island Railroad bridge in St. Joseph. River mile, 448.2.

Drainage area.--424,300 sq mi, approximately.

Records available.--August 1928 to September 1968. Gage-height records collected in vicinity 1873-99 are contained in reports of Missouri River Commission; since 1900 in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 788.19 ft above mean sea level, datum of 1929. Prior to Oct. 21, 1931, chain gage and Oct. 21, 1931 to Dec. 31, 1933, water-stage recorder at same site at datum 5.50 ft higher.

Average discharge.--40 years, 36,800 cfs (26,640,000 acre-ft per year).

Extremes.--Maximum discharge during year, 81,200 cfs July 16 (gage height, 15.53 ft); minimum daily, 8,300 cfs Jan. 5; minimum gage height, 5.02 ft Dec. 26.
1928-68: Maximum discharge, 397,000 cfs Apr. 22, 23, 1952 (gage height, 26.82 ft); minimum, 2,300 cfs Jan. 9, 1937; minimum gage height, 0.00 ft Dec. 18, 19, 1940.
Maximum stage known, 27.2 ft, present datum, Apr. 29, 1881 (discharge, about 370,000 cfs, computed by Corps of Engineers).
Flood of June 1844 reached a stage of 24.5 ft (discharge, about 350,000 cfs, computed by Corps of Engineers).

Remarks.--Records good. Discharge measurements made 3 or more times a month during winter and 6 or more times monthly during rest of year. Flow partly regulated by many upstream reservoirs.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40,200	42,000	24,900	14,000	24,500	23,600	37,600	38,900	40,600	43,000	46,400	36,000
2	39,600	41,600	24,000	13,000	27,100	24,200	37,000	39,900	38,600	41,200	42,300	35,700
3	39,200	42,000	24,000	10,500	33,300	24,200	37,900	39,200	37,300	38,900	39,200	34,500
4	37,900	40,600	24,700	8,500	48,800	28,000	39,900	37,900	36,300	38,200	37,600	37,900
5	40,900	39,600	24,700	8,300	28,600	30,200	41,600	37,900	35,100	37,600	37,600	43,000
6	41,600	39,900	24,900	9,000	25,200	26,800	40,600	37,600	34,800	37,000	37,600	40,900
7	57,200	38,600	25,400	9,500	25,600	28,000	37,300	37,900	34,500	36,300	37,900	38,900
8	51,200	38,200	25,200	10,000	25,400	29,600	37,000	38,900	35,400	36,300	37,300	37,000
9	44,800	37,300	25,200	11,000	25,600	27,800	37,900	39,600	36,600	36,600	46,800	36,300
10	42,000	37,600	25,200	12,000	27,100	25,900	38,600	38,900	38,200	37,600	50,400	35,700
11	40,900	37,600	25,200	13,500	28,600	25,200	37,600	38,200	43,400	36,000	53,600	35,700
12	39,900	37,600	25,200	14,500	28,800	24,900	37,900	37,000	44,000	36,000	42,000	35,400
13	38,200	38,900	25,400	15,000	28,800	24,500	38,200	36,600	42,300	37,300	39,900	35,400
14	38,600	39,900	25,200	15,000	27,800	24,200	41,200	37,900	41,200	37,900	39,600	35,100
15	44,000	38,900	24,500	15,000	26,800	23,800	40,600	39,900	39,800	38,200	37,600	35,400
16	41,600	38,900	24,200	14,000	25,600	24,000	41,600	39,200	39,500	53,400	37,900	35,700
17	41,200	38,900	23,600	15,000	26,600	23,600	41,200	40,900	40,200	56,800	41,200	37,600
18	39,900	38,900	23,800	16,500	27,100	24,000	38,600	41,200	38,900	42,300	39,200	38,900
19	38,900	37,900	24,500	18,000	24,200	27,300	39,200	39,600	38,900	42,300	38,600	37,900
20	38,900	37,600	24,900	20,000	21,700	30,400	41,600	38,600	38,600	42,600	40,900	37,600
21	37,900	37,300	24,900	21,000	20,600	33,000	38,200	38,200	37,900	40,600	39,600	36,300
22	38,600	37,900	24,200	23,000	23,200	36,300	38,600	38,600	37,300	40,200	39,200	35,100
23	37,600	37,600	24,200	25,000	23,800	38,900	44,400	37,900	38,600	43,700	37,900	33,600
24	38,200	38,600	20,800	25,000	22,500	38,200	43,700	37,600	38,600	44,400	37,600	33,900
25	39,600	37,900	16,400	22,000	21,700	37,600	40,200	37,600	44,000	47,600	38,900	35,700
26	40,600	36,300	14,800	22,000	23,000	35,400	40,200	38,900	50,000	44,400	39,600	38,200
27	42,000	34,500	18,300	23,000	23,200	36,000	38,600	41,600	64,000	42,600	39,200	38,200
28	42,300	31,600	21,500	23,000	23,000	37,000	37,600	42,300	57,200	39,900	40,900	35,400
29	42,000	29,100	17,900	24,000	23,000	38,900	37,000	41,200	43,700	37,000	40,200	34,200
30	41,600	26,800	15,700	24,000	------	38,600	37,900	38,900	41,200	38,600	37,900	33,600
31	43,000	------	15,400	24,000	------	38,900	------	37,600	------	45,200	36,300	------
TOTAL	1,280.1M	1,130.1M	708,800	518,300	761,200	929,000	1,179.5M	1,206.2M	1,226.7M	1,269.7M	1,250.9M	1,094.8M
MEAN	41,290	37,670	22,860	16,720	26,250	29,970	39,320	38,910	40,890	40,960	40,350	36,490
MAX	57,200	42,000	25,400	25,000	48,800	38,900	44,400	42,300	64,000	56,800	53,600	43,000
MIN	37,600	26,800	14,800	8,300	20,600	23,600	37,000	36,600	34,500	36,000	36,300	33,600
AC-FT	2,539M	2,242M	1,406M	1,028M	1,510M	1,843M	2,340M	2,392M	2,433M	2,518M	2,481M	2,172M

CAL YR 1967: TOTAL 14,150,600 MEAN 38,770 MAX 158,000 MIN 9,500 AC-FT 28,070,000
WTR YR 1968: TOTAL 12,555,300 MEAN 34,300 MAX 64,000 MIN 8,300 AC-FT 24,900,000

PEAK DISCHARGE (BASE, 100,000 CFS).--NO PEAK ABOVE BASE.

NOTE.--STAGE-DISCHARGE RELATION AFFECTED BY ICE JAN. 1-29.

M EXPRESSED IN THOUSANDS.

6-8182. Doniphan Creek at Doniphan, Kans.

Location.--Lat 39°38'08", long 95°04'55", in NE¼ sec. 8, T. 5 S., R. 21 E., at highway bridge in Doniphan, Doniphan County, 1.0 mile upstream from mouth, and 5 miles northeast of Atchison.

Drainage area.--4.15 sq mi.

Records available.--May 1960 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 790 ft (from topographic map).

Average discharge.--8 years, 3.14 cfs (2,270 acre-ft per year).

Extremes.--Maximum discharge during year, 2,040 cfs Aug. 10 (gage height, 13.55 ft); minimum, 0.18 cfs July 21-23.
1960-68: Maximum discharge, 4,980 cfs, July 27, 1967 (gage height, 16.8 ft, from floodmark); no flow Dec. 16-18, 1964.

Remarks.--Records poor.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.72	.87	1.0	1.0	.90	.90	.75	1.0	.66	.30	.37	1.2
2	.69	.94	1.2	1.0	.87	.80	.87	.98	.63	.28	7.0	1.1
3	.66	.87	1.0	.90	.87	.80	1.1	.94	.63	.28	.38	5.5
4	.66	.84	1.0	.90	.87	.80	.72	.94	.63	.26	.33	25
5	14	.87	.98	.90	.87	.98	.72	.94	.60	.26	.30	1.3
6	25	.87	1.0	.80	.84	.94	.72	.98	.57	.25	.28	1.2
7	56	.90	1.0	.80	.84	.98	.72	1.3	.60	.25	.28	1.1
8	1.4	.90	1.0	.80	.84	1.1	.72	1.0	.63	.25	.36	1.1
9	1.2	.94	1.2	.80	.84	1.0	.72	1.0	.63	.24	11	1.1
10	1.1	.94	1.5	.80	.84	.90	.72	.98	65	.22	183	1.0
11	1.1	.94	1.1	.80	.84	.90	.72	.98	1.4	.23	4.3	1.0
12	1.1	.98	1.1	.80	.84	1.0	.69	.90	.72	.24	2.8	1.0
13	1.1	.98	1.1	.75	.84	.98	.78	.98	.66	.25	2.5	.99
14	1.0	.98	1.1	.75	.84	.87	4.9	.98	.69	.22	2.2	.99
15	9.0	.98	1.3	.75	.78	.87	.94	.90	.66	.22	2.1	.97
16	1.0	.98	1.3	.72	.78	.87	1.8	.87	.66	4.1	13	.97
17	.98	.94	1.4	.72	.78	.87	1.1	.81	.66	2.1	4.7	.97
18	.90	.94	2.5	1.0	.78	.87	.90	.81	.63	.28	3.0	.97
19	.87	.90	1.4	1.0	.78	.84	2.8	.81	.66	.23	2.5	1.1
20	.84	.94	1.4	3.4	.75	.81	1.1	.81	.60	.21	2.0	.95
21	.81	1.0	1.3	1.2	.75	.78	1.1	1.0	.60	.20	3.5	.90
22	.75	1.1	1.3	.94	.80	.78	19	1.0	.57	.20	2.5	.88
23	.78	1.1	1.2	.87	.80	.87	2.2	.87	.57	.20	2.0	1.8
24	.87	1.1	1.2	.87	.84	.81	1.3	.81	.57	.35	1.5	.95
25	.81	1.1	1.1	.94	.84	.81	1.2	1.0	.57	.24	1.7	.88
26	2.0	1.1	1.1	.94	.87	.81	1.1	.84	.57	92	1.4	.84
27	.89	1.1	1.1	.98	.90	.78	1.1	.78	.57	7.7	1.3	.82
28	.75	1.1	1.0	.94	.90	.78	1.1	.72	.54	.26	1.2	.78
29	.78	1.0	1.0	.98	.80	.78	1.1	.72	.48	.21	1.2	.76
30	.78	1.0	1.0	.87	------	.78	1.1	.75	.39	3.5	1.7	.72
31	.81	------	1.0	.87	------	.78	------	.81	------	68	1.4	------
TOTAL	129.35	29.20	36.88	29.79	24.09	26.84	53.79	28.21	83.35	183.53	261.80	58.84
MEAN	4.17	.97	1.19	.96	.83	.87	1.79	.91	2.78	5.92	8.45	1.96
MAX	56	1.1	2.5	3.4	.90	1.1	19	1.3	65	92	183	25
MIN	.66	.84	.98	.72	.75	.78	.69	.72	.39	.20	.28	.72
AC-FT	257	58	73	59	48	53	107	56	165	364	519	117

CAL YR 1967 TOTAL 1,172.14 MEAN 3.21 MAX 303 MIN .10 AC-FT 2,320
WTR YR 1968 TOTAL 945.67 MEAN 2.58 MAX 183 MIN .20 AC-FT 1,880

PEAK DISCHARGE (BASE, 400 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-6	2400	11.65	925	7-31	0645	11.52	860
6-10	2100	11.78	990	8-10	1245	13.55	2,040
7-26	2300	12.69	1,460	9-04	0030	10.54	459

6-8447. South Fork Sappa Creek near Brewster, Kans.

Location.--Lat 39°17'07", long 101°27'56", in NW¼NW¼SW¼ sec. 9, T. 9 S., R. 37 W., at highway bridge 9 miles southwest of Brewster, Sherman County.

Drainage area.--74.0 sq mi.

Records available.--October 1967 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 3,440 ft (from topographic map).

Extremes.--Maximum discharge during year, 193 cfs June 22 (gage height, 4.52 ft); no flow for many days.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	.20	0
4	0	0	0	0	0	0	0	0	0	0	.01	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	.64	0	0
11	0	0	0	0	0	0	0	0	0	6.2	0	0
12	0	0	0	0	0	0	0	0	0	.51	0	0
13	0	0	0	0	0	0	0	0	0	.08	0	0
14	0	0	0	0	0	0	0	0	0	.04	1.2	0
15	0	0	0	0	0	0	0	0	0	0	7.6	0
16	0	0	0	0	0	0	0	0	85	0	.03	0
17	0	0	0	0	0	0	0	0	24	0	0	0
18	0	0	0	0	0	0	0	0	1.1	0	0	0
19	0	0	0	0	0	0	0	0	.08	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	23	0	0	0
23	0	0	0	0	0	0	0	0	10	0	0	0
24	0	0	0	0	0	0	0	0	.16	0	0	0
25	0	0	0	0	0	0	0	0	.06	0	0	0
26	0	0	0	0	0	0	0	0	.12	0	0	0
27	0	0	0	0	0	0	0	0	.01	0	0	0
28	0	0	0	0	0	0	0	0	0	0	1.3	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	------	0	0	0	0	0	0	0
31	0	------	0	0	------	0	------	0	------	0	0	------
TOTAL	0	0	0	0	0	0	0	0	143.53	7.47	10.34	0
MEAN	0	0	0	0	0	0	0	0	4.78	.24	.33	0
MAX	0	0	0	0	0	0	0	0	85	6.2	7.6	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	0	0	285	15	21	0

CAL YR 1967:	TOTAL		MEAN		MAX		MIN		AC-FT	
WTR YR 1968:	TOTAL	161.34	MEAN	.44	MAX	85	MIN	0	AC-FT	321

PEAK DISCHARGE (BASE, 75 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
6-16	1400	4.48	187	6-22	2200	4.52	193

6-8449. South Fork Sappa Creek near Achilles, Kans.

Location.--Lat 39°40'37", long 100°43'18", on west line sec. 29, T. 4 S., R. 30 W., at downstream side of highway bridge, 5.5 miles southeast of Achilles, 14 miles southwest of Oberlin, Decatur County, and 20.2 miles upstream from confluence with North Fork.

Drainage area.--434 sq mi.

Records available.--July 1959 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 2,722.42 ft above mean sea level, datum of 1929.

Average discharge.--9 years, 6.25 cfs (4,520 acre-ft per year).

Extremes.--Maximum discharge during year, 625 cfs Aug. 30 (gage height, 8.43 ft); no flow for many days.
1959-68: Maximum discharge, 4,120 cfs Mar. 20, 1960 (gage height, 9.03 ft), from rating curve extended above 600 cfs; no flow for many days in each year.

Remarks.--Records fair. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	0	0	0	0	0	.90	0	65
2	0	0	0	0	0	0	0	0	0	.10	0	24
3	0	0	0	0	0	0	0	0	0	0	0	13
4	0	0	0	0	0	0	0	0	0	0	0	7.6
5	0	0	0	0	0	0	0	0	0	0	0	5.4
6	0	0	0	0	0	0	0	0	0	0	0	3.4
7	0	0	0	0	0	0	0	0	0	0	0	2.1
8	0	0	0	0	0	0	0	0	0	0	0	1.2
9	0	0	0	0	0	0	0	0	0	0	0	.65
10	0	0	0	0	0	0	0	0	0	0	0	.28
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	.88	0	0
15	0	0	0	0	0	0	0	0	0	.03	0	33
16	0	0	0	0	0	0	0	0	0	0	0	38
17	0	0	0	0	0	0	0	0	0	0	0	.25
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	4.0	0	0
21	0	0	0	0	0	0	0	0	0	.84	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	40	0	0	0
27	0	0	0	0	0	0	0	0	20	0	0	0
28	0	0	0	0	0	0	0	0	10	0	5.8	0
29	0	0	0	0	0	0	0	0	7.0	0	17	0
30	0	0	0	0	------	0	0	0	3.0	0	482	0
31	0	------	0	0	------	0	------	0	------	0	290	------
TOTAL	0	0	0	0	0	0	0	0	80.0	6.75	794.8	193.88
MEAN	0	0	0	0	0	0	0	0	2.67	.22	25.6	6.46
MAX	0	0	0	0	0	0	0	0	40	.90	482	65
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	0	0	159	13	1,580	385

CAL YR 1967: TOTAL 186.60 MEAN .51 MAX 36 MIN 0 AC-FT 370
WTR YR 1968: TOTAL 1,075.43 MEAN 2.94 MAX 482 MIN 0 AC-FT 2,140

PEAK DISCHARGE (BASE, 100 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
6-26	UNKNOWN	7.19	199	9-15	2300	8.07	458
8-30	1000	8.43	625				

6-8450. Sappa Creek near Oberlin, Kans.

Location.--Lat 39°47'07", long 100°34'28", in NE¼ sec. 21, T. 3 S., R. 29 W., 0.3 mile downstream from confluence of North and South Forks, 3½ miles southwest of Oberlin, Decatur County, and at mile 107.8.

Drainage area.--1,040 sq mi, approximately, of which an unknown portion is non-contributing.

Records available.--October 1928 to September 1932, October 1943 to September 1968. Monthly discharge only for some periods, published in WSP 1310.

Gage.--Digital water-stage recorder. Altitude of gage is 2,570 ft (from topographic map). Mar. 18, 1929 to June 30, 1932, staff gage at site 7 miles downstream at datum 2,522.98 ft above mean sea level, datum of 1929. June 22, 1944 to Jan. 15, 1945, wire-weight gage 150 ft below previous site at datum 2.20 ft lower. Jan. 16, 1945 to Sept. 30, 1955, graphic water-stage recorder and concrete control 100 ft above previous wire-weight gage site at datum 2,522.50 ft above mean sea level, datum of 1929. Oct. 1, 1955 to May 21, 1958, and Jan. 5, to May 19, 1959, wire-weight gage at bridge on U.S. Highway 83, 4.1 miles below present site at different datum. May 20, 1959 to Sept. 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--29 years, 19.8 cfs (14,330 acre-ft per year).

Extremes.--Maximum discharge during year, 1,010 cfs Aug. 28 (gage height, 9.08 ft); no flow at times in July and Aug.
1928-32, 1943-68: Maximum discharge, 10,600 cfs July 16, 1944 (gage height, 15.28 ft, site and datum then in use, from floodmark), from rating curve extended above 4,200 cfs on basis of peak flow over dam; no flow at times.

Remarks.--Records good. Some diversions above station for irrigation. Records of chemical analyses and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	.07	.15	.18	.14	.23	.18	.12	.14	1.3	.01	261
2	.08	.06	.15	.18	.14	.21	.18	.12	.14	.11	0	81
3	.07	.06	.14	.18	.14	.18	.21	.12	.13	.04	.01	29
4	.08	.06	.14	.18	.14	.22	.22	.12	.15	.10	.02	16
5	.08	.07	.14	.19	.14	.21	.19	.10	.13	.04	.01	10
6	.10	.08	.16	.20	.14	.18	.19	.11	.11	.03	0	7.3
7	.11	.11	.18	.20	.16	.19	.21	.14	.06	.02	0	5.0
8	.11	.11	.18	.20	.17	.20	.20	.13	.06	.02	0	2.9
9	.10	.11	.20	.20	.20	.20	.18	.12	.06	.02	0	1.4
10	.09	.11	.20	.20	.20	.18	.16	.14	.10	.02	3.3	.31
11	.09	.11	.21	.21	.18	.20	.16	.14	.08	.02	6.3	.11
12	.09	.11	.23	.21	.18	.20	.18	.12	.08	.02	.08	.04
13	.09	.11	.22	.20	.17	.19	.19	.10	.08	.01	0	.02
14	.09	.11	.20	.20	.16	.20	.18	.11	.07	.01	0	.02
15	.11	.13	.18	.20	.15	.20	.18	.08	.08	0	0	.05
16	.10	.14	.18	.20	.16	.19	.18	.09	.08	0	0	199
17	.09	.14	.18	.18	.16	.17	.18	.11	4.7	0	0	125
18	.09	.13	.18	.17	.15	.20	.17	.11	15	0	0	16
19	.10	.13	.18	.16	.16	.22	.22	.08	.19	0	0	6.3
20	.10	.13	.18	.16	.16	.22	.17	.10	.10	.08	0	2.6
21	.09	.14	.18	.16	.15	.21	.14	.06	.09	.01	0	1.1
22	.08	.14	.18	.18	.14	.21	.16	.06	.10	0	0	.41
23	.09	.14	.18	.17	.13	.20	.14	.06	.12	0	0	.28
24	.09	.14	.19	.16	.14	.20	.14	.08	.11	0	0	.21
25	.08	.16	.20	.16	.15	.20	.14	.07	.19	0	0	.12
26	.11	.14	.18	.15	.18	.21	.14	.06	.09	14	0	.08
27	.11	.14	.18	.15	.21	.20	.14	.08	7.6	93	0	.06
28	.08	.14	.19	.15	.24	.20	.14	.09	48	12	387	.08
29	.09	.14	.19	.14	.24	.19	.14	.09	14	1.2	179	.10
30	.08	.14	.18	.13	------	.19	.13	.12	7.0	.06	23	.13
31	.08	------	.18	.13	------	.20	------	.15	------	.03	186	------
TOTAL	2.82	3.50	5.61	5.48	4.78	6.20	5.14	3.18	98.84	122.14	784.73	765.62
MEAN	.091	.12	.18	.18	.16	.20	.17	.10	3.29	3.94	25.3	25.5
MAX	.11	.16	.23	.21	.24	.23	.22	.15	48	93	387	261
MIN	.07	.06	.14	.13	.13	.17	.13	.06	.06	0	0	.02
AC-FT	5.6	6.9	11	11	9.5	12	10	6.3	196	242	1,560	1,520

CAL YR 1967: TOTAL 788.99 MEAN 2.16 MAX 135 MIN 0 AC-FT 1,560
WTR YR 1968: TOTAL 1,808.04 MEAN 4.94 MAX 387 MIN 0 AC-FT 3,590

PEAK DISCHARGE (BASE, 200 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8-28	1600	9.08	1,010	9-16	1400	6.08	313
9-01	0900	6.01	306				

6-8463. Beaver Creek at Herndon, Kans.

Location.--Lat 39°54'07", long 100°46'35", on west line sec. 2, T. 2 S., R. 31.W., at downstream side of bridge on highway K117, 0.5 mile south of Herndon, Rawlins County, and 112 miles above mouth.

Drainage area.--1,520 sq mi, approximately.

Records available.--October 1962 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 2,642.13 ft above mean sea level (Bureau of Reclamation bench mark). Prior to Feb. 6, 1963, wire-weight gage at present site and datum. Feb. 6, 1963 to Sept. 30, 1965 graphic water-stage recorder at present site and datum.

Average discharge.--6 years, 18.0 cfs (13,030 acre-ft per year).

Extremes.--Maximum discharge during year, 350 cfs Aug. 28 (gage height, 10.38 ft); no flow at times.
1962-68: Maximum discharge, 3,200 cfs May 25, 1965 (gage height, 14.05 ft); no flow at times.

Remarks.--Records good except those for winter months, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.03	.06	0	.70	2.0	3.9	.68	.99	6.2	.11	32
2	.01	.03	.06	0	1.0	4.0	4.2	.76	.46	3.1	0	27
3	.01	.03	.07	0	2.0	4.0	3.1	.52	.23	1.2	0	15
4	0	.03	.08	0	5.0	5.0	2.5	.44	.09	.18	13	9.9
5	.01	.02	.09	0	5.0	5.7	2.6	.18	0	.07	1.2	6.2
6	0	.01	.12	0	5.0	5.0	2.6	.14	0	.01	.01	2.9
7	0	0	.23	0	4.0	4.6	2.2	.12	0	0	.93	1.0
8	0	0	.37	0	4.0	4.6	1.3	.16	0	0	0	.07
9	0	0	.93	0	4.0	4.6	1.7	.52	0	0	0	0
10	.01	.02	.78	0	4.0	4.4	1.9	.84	0	0	0	0
11	.01	.02	.78	0	4.0	4.4	1.9	2.7	0	0	0	0
12	.01	.03	.98	0	4.0	4.6	1.8	1.4	0	0	0	0
13	.02	.03	.98	0	3.0	5.0	1.7	1.6	0	0	0	0
14	.02	.03	.70	0	3.0	4.6	.96	2.3	0	0	0	0
15	.01	.03	.30	0	4.0	4.5	1.0	1.7	.02	0	0	14
16	.01	.03	.10	0	6.0	4.4	.92	1.8	.07	0	0	115
17	.01	.03	.10	0	8.0	4.4	.95	1.6	.02	0	0	4.0
18	.01	.03	.20	0	8.0	4.3	1.1	.97	.02	.85	0	7.9
19	.02	.03	.20	0	9.0	4.2	2.1	.65	6.6	1.1	0	1.3
20	.02	.03	.20	0	10	4.2	2.0	.55	26	.02	0	.13
21	.02	.02	.10	0	5.0	4.1	2.0	.52	19	0	0	0
22	.02	.02	0	0	2.0	4.3	4.1	.42	22	0	0	0
23	.01	.03	0	0	.50	4.4	4.4	.52	12	0	0	0
24	.01	.03	.10	0	.70	4.8	4.7	.61	7.2	0	0	0
25	.01	.03	.10	.10	1.0	4.4	3.5	.92	5.1	0	0	0
26	.01	.15	.03	.20	1.5	4.5	2.7	1.5	2.4	0	0	0
27	.01	.11	0	.20	2.0	4.3	2.0	2.3	39	0	0	0
28	.01	.06	0	.20	2.0	4.0	1.6	2.4	43	135	80	0
29	.02	.06	0	.20	1.5	4.2	.84	2.4	19	31	.55	0
30	.02	.05	0	.10	------	4.2	.76	1.9	11	5.1	44	0
31	.02	------	0	.30	------	4.2	------	1.7	------	.88	45	------
TOTAL	0.35	1.03	7.66	1.30	109.90	135.9	67.63	34.82	214.20	184.71	184.80	236.40
MEAN	.011	.034	.25	.042	3.79	4.38	2.25	1.12	7.14	5.96	5.96	7.88
MAX	.02	.15	.98	.30	10	5.7	4.7	2.7	43	135	80	115
MIN	0	0	0	0	.50	2.0	.76	.12	0	0	0	0
AC-FT	.7	2.0	15	2.6	218	270	134	69	425	366	367	469

CAL YR 1967 TOTAL 2,052.48 MEAN 5.62 MAX 270 MIN 0 AC-FT 4,070
WTR YR 1968 TOTAL 1,178.70 MEAN 3.22 MAX 135 MIN 0 AC-FT 2,340

PEAK DISCHARGE (BASE, 250 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8-28	0500	10.38	350	9-16	0400	10.23	338

6-8465. Beaver Creek at Cedar Bluffs, Kans.

Location.--Lat 39°59', long 100°35', in NE¼ sec. 10, T. 1 S., R. 29 W., on right bank 100 ft downstream from bridge on U.S. Highway 83, a quarter of a mile north of Cedar Bluffs, Decatur County, and 1¼ miles south of Kansas-Nebraska state line.

Drainage area.--1,710 sq mi, approximately.

Records available.--October 1945 to September 1968. Monthly discharge only for some periods, published in WSP 1310.

Gage.--Digital water-stage recorder. Datum of gage is 2,520.33 ft above mean sea level, datum of 1929. Prior to April 7, 1965, graphic water-stage recorder at same site and datum.

Average discharge.--23 years, 26.8 cfs (19,400 acre-ft per year).

Extremes.--Maximum discharge during year, 263 cfs June 18 (gage height, 7.41 ft); no flow at times.
1945-68: Maximum discharge, 7,940 cfs June 11, 1960 (gage height, 18.71 ft); no flow at times in most years.
Flood in July 1944 reached a stage of 18.16 ft, from floodmark.

Remarks.--Records good except those for winter months, which are poor. Records of chemical analyses and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.13	.09	0	1.0	3.0	.95	.86	1.5	12	.96	44
2	0	.18	.09	0	1.2	4.0	1.0	.40	1.1	7.5	.39	26
3	0	.16	.09	0	1.5	3.0	1.3	.29	.81	4.4	.15	27
4	0	.13	.09	.10	1.3	4.0	1.4	.30	.53	2.0	1.7	14
5	0	.12	.09	.10	1.0	5.5	.36	.13	.31	1.2	.28	8.7
6	0	.12	.09	.10	5.2	7.1	1.1	.10	.19	.58	3.0	5.2
7	0	.10	.10	0	9.6	6.8	.44	.10	.11	.55	.62	2.6
8	0	.10	.09	0	9.6	5.8	.31	.13	.08	.21	.09	1.0
9	0	.11	.18	.20	5.8	5.7	.36	.09	.06	.10	0	.31
10	0	.16	.19	.20	7.0	5.3	.16	.26	.07	.08	0	.14
11	0	.16	.23	.20	6.7	4.6	.20	.48	.05	.03	0	.08
12	.01	.13	.23	.20	6.0	4.7	.18	.67	.03	.02	0	.02
13	0	.12	.22	.10	5.0	4.3	.36	1.8	.02	0	0	0
14	0	.11	.23	.10	5.0	5.2	.45	2.1	0	0	0	0
15	.01	.11	.20	.20	5.0	5.0	.38	.72	.05	0	0	0
16	.01	.10	.20	.30	7.0	4.3	.21	.50	.10	0	0	1.5
17	.01	.10	.20	.50	7.0	4.2	.13	.84	.09	0	0	82
18	.01	.10	.28	.50	6.0	3.8	.20	1.3	96	0	0	7.8
19	.02	.10	.36	.50	8.0	3.9	.14	1.7	16	0	0	4.0
20	.02	.10	.58	.50	8.0	3.6	.31	1.4	1.8	0	0	3.6
21	.03	.10	.26	.50	6.0	3.0	.34	1.2	6.9	0	0	.85
22	.03	.09	.20	.40	4.5	3.1	1.5	.81	12	.22	0	.18
23	.04	.09	.20	.30	3.5	2.5	.88	.67	18	.44	0	.15
24	.03	.09	.30	.30	4.5	2.8	1.4	.60	13	.01	0	.06
25	.05	.09	.20	.60	7.0	3.2	3.1	.78	9.0	0	0	.01
26	.06	.07	.10	1.0	10	3.7	3.8	.73	6.9	1.9	0	0
27	.07	.08	.10	1.0	8.0	1.5	2.1	.98	4.4	6.9	0	0
28	.08	.08	.10	1.0	5.0	2.9	1.7	1.2	11	2.8	11	0
29	.14	.09	.10	1.0	3.0	2.3	.95	1.1	45	64	90	0
30	.11	.09	.10	.60	------	2.1	.68	1.3	25	32	6.8	0
31	.10	------	0	.80	------	1.7	------	1.3	------	6.0	18	------
TOTAL	0.83	3.31	5.49	11.30	158.4	122.6	26.39	24.84	270.10	142.94	132.99	229.20
MEAN	.027	.11	.18	.36	5.46	3.95	.88	.80	9.00	4.61	4.29	7.64
MAX	.14	.18	.58	1.0	10	7.1	3.8	2.1	96	64	90	82
MIN	0	.07	0	0	1.0	1.5	.13	.09	0	0	0	0
AC-FT	1.7	6.6	11	22	314	243	52	49	536	284	264	455

CAL YR 1967: TOTAL 1,937.02 MEAN 5.31 MAX 259 MIN 0 AC-FT 3,840
WTR YR 1968: TOTAL 1,128.39 MEAN 3.08 MAX 96 MIN 0 AC-FT 2,240

PEAK DISCHARGE (BASE, 300 CFS).--NO PEAK ABOVE BASE.

6-8479. Prairie Dog Creek above Norton Reservoir, Kans.

Location.--Lat 39°46'13", long 100°06'00", SE¼SE¼ sec. 23, T. 3 S., R. 25 W., at downstream side of bridge on county road, 4 miles east of Clayton, Norton County, and 85.3 miles upstream from mouth.

Drainage area.--580 sq mi.

Records available.--June 1962 to September 1968.

Gage.--Digital water-stage recorder and concrete control. Datum of gage is 2,336.94 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1964, graphic water-stage recorder and concrete control at present site and datum.

Average discharge.--6 years, 16.0 cfs (11,580 acre-ft per year).

Extremes.--Maximum discharge during year, 678 cfs July 27 (gage height, 7.21 ft); minimum, 0.03 cfs July 23, but may have been less during period of ice effect.
1962-68: Maximum discharge, 4,680 cfs June 13, 1965 (gage height, 12.06 ft); no flow at times.
Maximum flood known since at least 1944, 65,500 cfs May 28, 1953 at site 9.4 miles downstream, based on contracted opening measurement of peak flow.

Remarks.--Records good. Diversions for irrigation above station. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.43	.58	1.1	1.9	4.1	5.5	2.4	3.3	2.0	6.4	8.8	67
2	.43	.70	1.4	1.7	4.2	5.0	2.8	3.1	2.0	2.7	7.1	67
3	.42	.93	1.1	1.6	4.2	3.2	2.7	2.9	1.7	1.4	6.0	35
4	.34	.93	1.0	1.9	4.7	4.6	2.5	2.7	1.4	.62	5.3	23
5	6.6	.92	1.4	1.9	4.0	5.2	2.3	2.4	1.1	.33	5.7	16
6	24	.89	1.3	1.5	4.4	4.2	2.3	2.6	.92	29	6.2	13
7	2.7	.84	1.1	1.0	3.1	4.4	2.4	5.3	.90	6.5	4.0	193
8	1.2	.89	1.3	1.0	3.7	4.4	2.2	5.4	.80	1.9	3.2	28
9	.73	.97	1.4	1.5	3.7	4.3	2.3	3.2	.74	.74	2.9	13
10	.54	1.0	1.5	2.0	4.0	4.8	2.3	3.8	1.1	.30	8.5	9.5
11	.56	1.0	1.6	2.0	4.0	3.8	2.2	5.9	19	.19	4.5	7.8
12	.52	.93	2.0	2.0	3.2	4.3	2.1	4.6	15	.29	3.4	6.5
13	.39	.92	1.4	1.5	3.2	3.5	2.1	4.1	3.2	5.5	2.7	5.8
14	.42	.92	1.3	1.5	2.2	3.6	2.2	4.2	1.3	1.9	2.3	5.0
15	.39	1.0	1.6	2.0	4.0	3.7	2.0	3.6	.88	3.2	3.0	4.4
16	.39	1.1	1.9	2.5	4.1	3.5	2.0	3.2	.81	.86	2.3	290
17	.41	1.0	2.0	2.6	3.3	3.4	2.1	3.0	.74	.34	1.9	344
18	.42	.92	1.6	2.8	3.3	3.4	2.1	2.7	.64	.19	1.6	45
19	.43	.92	1.7	3.1	4.4	4.9	2.1	2.4	.52	.12	1.6	26
20	.43	.95	2.2	3.2	4.1	4.0	2.7	2.4	1.2	.08	1.5	19
21	.42	1.1	1.4	4.1	3.4	3.5	3.0	2.4	1.1	.06	1.2	14
22	.47	1.2	.95	4.7	3.3	3.3	47	2.4	.49	.07	.88	12
23	.51	1.2	.90	4.6	3.3	2.7	9.2	2.6	.31	.05	.67	10
24	.43	1.2	2.1	4.9	5.2	3.5	9.8	2.6	.30	.06	.57	8.6
25	.43	1.2	2.5	5.2	5.4	3.5	7.6	3.3	.43	4.8	.49	7.7
26	.47	1.2	2.1	5.9	5.4	3.4	5.2	3.7	.32	29	.43	7.0
27	.43	1.2	1.7	5.6	5.1	3.4	4.5	2.9	.27	530	.38	6.4
28	.45	1.2	1.9	5.2	5.3	3.3	5.5	2.5	.26	280	.89	5.7
29	.55	1.1	1.9	4.5	3.5	3.4	4.2	2.2	.20	42	203	5.3
30	.58	1.1	1.9	3.7	------	3.4	3.6	2.0	2.6	20	142	5.1
31	.58	------	3.4	3.8	------	2.9	------	2.1	------	12	50	------
TOTAL	47.07	30.01	50.65	91.4	115.8	120.0	145.4	99.5	62.23	980.60	483.01	1,299.8
MEAN	1.52	1.00	1.63	2.95	3.99	3.87	4.85	3.21	2.07	31.6	15.6	43.3
MAX	24	1.2	3.4	5.9	5.4	5.5	47	5.9	19	530	203	344
MIN	.34	.58	.90	1.0	2.2	2.7	2.0	2.0	.20	.05	.38	4.4
AC-FT	93	60	100	181	230	238	288	197	123	1,940	958	2,580

CAL YR 1967: TOTAL 3,674.19 MEAN 10.1 MAX 1,100 MIN .34 AC-FT 7,290
WTR YR 1968: TOTAL 3,525.47 MEAN 9.63 MAX 530 MIN .05 AC-FT 6,990

PEAK DISCHARGE (BASE, 700 CFS).--NO PEAK ABOVE BASE.

6-8479.5 Norton Reservoir near Norton, Kans.

Location.--Lat 39°48'27", long 99°56'04", in NE¼ sec. 8, T. 3 S., R. 23 W., in control tower near left end of Norton Dam on Prairie Dog Creek, 3 miles southwest of Norton, Norton County, and at mile 70.0.

Drainage area.--683 sq mi.

Records available.--October 1964 to September 1968.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

Extremes.--Maximum elevation during year, 2,300.98 ft Oct. 1 (contents, 29,180 acre-ft); minimum, 2,293.30 ft Aug. 29 (contents, 17,050 acre-ft).
1964-68: Maximum elevation, 2,304.59 ft June 27, 1967 (contents, 36,570 acre-ft); minimum since conservation pool was first filled, 2,279.00 ft June 12, 1965 (contents, 4,510 acre-ft).

Remarks.--Reservoir is formed by compacted earth-fill dam; storage began Oct. 6, 1964. Total capacity, 193,023 acre-ft, consisting of the following: sedimentation, 2,920 acre-ft below elevation 2,275.5 ft; conservation pool, 33,010 acre-ft, between elevations 2,275.5 and 2,304.3 ft; flood control pool, 98,800 acre-ft, between elevations 2,304.3 and 2,331.4 ft; and surcharge pool, 58,280 acre-ft, between elevations 2,331.4 and 2,341.0 ft. Reservoir is used for flood control and irrigation in Almena Unit, Missouri River Basin project.
Figures given herein represent elevations above mean sea level.

Capacity table (elevation, in feet, and contents, in acre-feet)

2,290	13,200
2,295	19,360
2,300	27,390
2,305	37,470

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100.96	100.56	100.35	100.25	100.23	100.26	100.10	99.31	99.31	97.78	94.73	93.63
2	100.96	100.56	100.35	100.25	100.23	100.26	100.12	99.27	99.29	97.63	94.67	93.66
3	100.95	100.56	100.35	100.25	100.23	100.26	100.11	99.27	99.27	97.46	94.64	93.63
4	100.88	100.56	100.35	100.26	100.23	100.26	100.07	99.25	99.25	97.30	94.63	93.61
5	100.91	100.56	100.35	100.26	100.24	100.26	100.07	99.22	99.23	97.12	94.57	93.56
6	100.93	100.54	100.34	100.26	100.24	100.26	100.07	99.28	99.20	96.99	94.50	93.53
7	100.91	100.54	100.33	100.25	100.24	100.26	100.06	99.28	99.21	96.83	94.44	93.72
8	100.91	100.54	100.27	100.25	100.24	100.27	99.98	99.26	99.19	96.65	94.37	93.75
9	100.87	100.54	100.27	100.25	100.24	100.27	99.93	99.26	99.15	96.47	94.27	93.76
10	100.87	100.53	100.27	100.25	100.24	100.27	99.89	99.30	99.14	96.27	94.37	93.77
11	100.87	100.50	100.27	100.25	100.24	100.25	99.86	99.30	99.13	96.08	94.38	93.77
12	100.85	100.49	100.27	100.25	100.24	100.25	99.82	99.31	99.10	95.92	94.38	93.77
13	100.85	100.49	100.27	100.25	100.24	100.25	99.78	99.32	99.08	95.75	94.38	93.75
14	100.82	100.49	100.27	100.25	100.24	100.25	99.74	99.32	99.05	95.57	94.41	93.73
15	100.80	100.49	100.27	100.25	100.24	100.25	99.68	99.30	99.03	95.37	94.42	93.76
16	100.80	100.49	100.27	100.25	100.24	100.25	99.63	99.28	99.02	95.16	94.42	94.02
17	100.77	100.48	100.31	100.25	100.24	100.27	99.57	99.28	98.98	95.02	94.40	94.62
18	100.76	100.47	100.30	100.25	100.24	100.25	99.52	99.24	98.93	94.79	94.39	94.70
19	100.72	100.44	100.28	100.25	100.24	100.22	99.47	99.24	98.90	94.60	94.38	94.73
20	100.72	100.43	100.28	100.25	100.24	100.20	99.45	99.24	98.86	94.40	94.33	94.76
21	100.70	100.42	100.27	100.24	100.24	100.18	99.45	99.23	98.79	94.19	94.27	94.79
22	100.70	100.42	100.26	100.24	100.24	100.18	99.42	99.20	98.73	93.98	94.18	94.79
23	100.68	100.42	100.26	100.24	100.24	100.18	99.40	99.20	98.64	93.81	94.08	94.80
24	100.67	100.42	100.26	100.24	100.27	100.18	99.40	99.20	98.57	93.67	93.99	94.80
25	100.64	100.42	100.26	100.24	100.27	100.18	99.34	99.27	98.49	93.59	93.87	94.80
26	100.62	100.39	100.25	100.24	100.25	100.17	99.34	99.28	98.40	93.63	93.70	94.80
27	100.60	100.38	100.25	100.24	100.26	100.17	99.33	99.28	98.34	94.30	93.43	94.78
28	100.60	100.38	100.25	100.24	100.26	100.17	99.33	99.28	98.21	94.83	93.38	94.76
29	100.58	100.38	100.25	100.24	100.26	100.15	99.33	99.28	98.12	94.88	93.42	94.76
30	100.58	100.38	100.25	100.24	------	100.13	99.32	99.31	97.94	94.79	93.64	94.77
31	100.58	------	100.25	100.24	------	100.11	------	99.32	------	94.79	93.63	------
MAX	100.96	100.56	100.35	100.26	100.27	100.27	100.12	99.32	99.31	97.78	94.73	94.80
MIN	100.58	100.38	100.25	100.24	100.23	100.11	99.32	99.20	97.94	93.59	93.38	93.53
(+)	28,450	28,090	27,850	27,830	27,870	27,590	26,210	26,210	23,880	19,070	17,480	19,040
(±)	-720	-360	-240	-20	+40	-280	-1,380	0	-2,330	-4,810	-1,590	+1,560

CAL YR 1967 ..... (±) -1,260
WTR YR 1968 ..... (±) -10,130

+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
± CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 2,200 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.

6-8480. Prairie Dog Creek at Norton, Kans.

Location.-- Lat 39°48'36", long 99°55'18", in NW¼NW¼ sec. 9, T. 3 S., R. 23 W., 0.9 mile downstream from Norton Dam, 2 miles southwest of Norton, Norton County, and at mile 69.2.

Drainage area.--684 sq mi.

Records available.--October 1943 to September 1968. Monthly discharge only for some periods, published in WSP 1310.

Gage.--Digital water-stage recorder and concrete control. Datum of gage is 2,239.38 ft above mean sea level (levels by Bureau of Reclamation). Apr. 13 to May 7, 1944, wire-weight gage and May 8, 1944 to Sept. 30, 1961, graphic water-stage recorder at site 3.2 miles downstream at datum 21.56 ft lower. Oct. 1, 1961 to Apr. 19, 1965, graphic water-stage recorder at site 0.5 mile upstream at datum 5.82 ft lower.

Average discharge.--25 years, 34.4 cfs (24,900 acre-ft per year).

Extremes.--Maximum discharge during year, 128 cfs July 5 (gage height, 3.57 ft); minimum, 0.07 cfs Mar. 31.
1943-68: Maximum discharge, 37,500 cfs May 28, 1953 (gage height, 25.6 ft, site and datum then in use), from rating curve extended above 14,000 cfs on basis of main channel velocity-area study and computation of peak flow over road; no flow at times in 1946, 1954-57, 1959-61, 1964-67.

Remarks.--Records good except those for winter months, which are poor. Flow regulated by Norton Dam (see station 6-8479.5).

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.58	.71	.80	.20	.46	.48	.56	1.6	.62	110	38	57
2	.63	.71	.55	.20	.37	.37	.42	1.2	.52	117	37	52
3	.55	.74	.68	.10	.37	.40	.33	4.2	.49	115	36	49
4	.40	.74	.74	.10	.37	.36	.29	2.6	.49	120	36	42
5	.76	.74	.74	.10	.37	.44	.54	.94	.60	124	34	42
6	.83	.74	.74	.10	.34	.43	.53	1.0	.28	123	32	34
7	.83	.74	.60	.10	.58	.46	.15	.51	.42	122	38	28
8	.92	.74	.72	.10	.56	.35	46	.63	9.8	122	49	15
9	.86	.74	.65	.20	.50	.35	34	.62	22	124	60	1.3
10	.83	.72	.67	.20	.44	.30	21	.97	23	126	7.1	1.1
11	.88	.66	.70	.20	.50	.29	21	1.1	18	126	1.3	1.0
12	.79	.66	.74	.20	.39	.41	21	.89	13	125	.86	.95
13	.81	.66	.65	.10	.30	.48	25	.75	13	120	.74	.84
14	.84	.73	.66	.10	.30	.28	28	.53	14	116	.63	.96
15	.80	.79	.66	.20	.40	.30	31	.45	13	120	.94	.86
16	.83	.79	.66	.20	.50	.40	34	.59	13	122	.58	.93
17	.83	.74	.66	.40	.61	.48	35	.64	13	120	.63	.61
18	.83	.74	.66	.50	.58	.17	37	.48	18	120	.45	.67
19	.81	.74	2.1	.66	.58	.12	40	.60	23	120	.43	.58
20	.67	.74	1.1	.58	.54	.18	40	.66	23	120	11	.58
21	.84	.74	.46	.50	.50	.36	41	.82	25	120	27	.79
22	.74	.74	.70	.44	.30	.34	35	.75	28	120	36	.44
23	.71	2.5	.47	.44	.20	.35	25	.74	36	120	40	.50
24	.73	1.6	.37	.50	.30	.43	23	.74	43	120	43	.50
25	.74	.96	.30	.58	.40	.35	20	1.2	44	120	68	.44
26	.69	.83	.30	.58	.44	.48	20	.90	48	86	95	.44
27	.83	.83	.30	.58	.44	2.3	19	.63	58	40	113	.50
28	.83	.83	.30	.58	.35	1.1	18	.56	71	5.0	115	.32
29	.72	.83	.30	.47	.40	.54	17	.50	78	30	109	.20
30	.74	.83	.30	.58	------	.43	11	.51	98	56	83	.34
31	.74	------	.20	.50	------	.22	------	.76	------	44	67	------
TOTAL	23.59	25.26	19.48	10.29	12.44	13.95	644.82	29.07	748.22	3,273.0	1,180.66	333.85
MEAN	.76	.84	.63	.33	.43	.45	21.5	.94	24.9	106	38.1	11.1
MAX	.92	2.5	2.1	.66	.61	2.3	46	4.2	98	126	115	57
MIN	.40	.66	.20	.10	.20	.12	.15	.45	.28	5.0	.43	.20
AC-FT	47	50	39	20	25	28	1,280	58	1,480	6,490	2,340	662

CAL YR 1967: TOTAL 4,149.53 MEAN 11.4 MAX 84 MIN 0 AC-FT 8,230
WTR YR 1968: TOTAL 6,314.63 MEAN 17.3 MAX 126 MIN .10 AC-FT 12,520

6-8485. Prairie Dog Creek near Woodruff, Kans.

Location.--Lat 39°59'00", long 99°28'30", in NW¼ of sec. 9, T. 1 S., R. 19 W., on left bank at downstream side of bridge on U.S. Highway 383, 1 mile south of Kansas-Nebraska state line, 2½ miles west of Woodruff, Phillips County, and 33 miles upstream from mouth.

Drainage area.--980 sq mi, approximately.

Records available.--October 1928 to September 1932, October 1944 to September 1968. Monthly discharge only for some periods, published in WSP 1310.

Gage.--Digital water-stage recorder. Datum of gage is 2,016.20 ft above mean sea level, datum of 1929. Mar. 19, 1929 to June 30, 1932, chain gage at site 200 ft downstream at different datum. May 11, 1945 to May 7, 1951, graphic water-stage recorder at site 18 miles downstream from present gage at datum 73.12 ft lower. May 8, 1951 to Feb. 19, 1952, wire-weight gage at site 21 miles downstream at datum 82.94 ft lower. Feb. 20, 1952 to Sept. 30, 1954, graphic water-stage recorder and Oct. 1, 1954 to Oct. 6, 1955, wire-weight gage, at site 18 miles downstream at datum 71.29 ft lower. Oct. 7, 1955 to Apr. 6, 1965, graphic water-stage recorder at present site and datum.

Average discharge.--28 years, 49.5 cfs (35,840 acre-ft per year).

Extremes.--Maximum discharge during year, 1,590 cfs Aug. 10 (gage height, 16.72 ft); minimum, 0.40 cfs July 10.
1928-32, 1944-68: Maximum discharge, 15,000 cfs June 23, 1947 (gage height, 21.04 ft, site and datum then in use), from rating curve extended above 6,500 cfs on basis of contracted-opening measurement of 11,300 cfs; no flow at times in 1945, 1948, 1950, 1954-61, 1963-66.

Remarks.--Records good except those for winter months, which are poor. Natural flow affected by irrigation development above station and by Norton Dam (see station 6-8479.5). Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	6.5	5.0	2.5	6.7	5.0	3.0	5.4	2.0	2.3	11	12
2	4.1	6.5	4.9	2.5	7.0	4.5	3.3	4.4	2.1	3.2	14	8.6
3	4.4	5.9	4.7	2.0	5.5	3.5	3.3	3.1	2.1	2.4	4.1	6.4
4	4.5	5.7	4.9	2.0	5.6	4.8	2.2	2.8	1.7	3.6	27	9.7
5	4.6	5.9	5.6	2.0	5.3	5.0	2.2	40	1.5	1.9	69	11
6	11	5.9	4.7	2.0	4.8	4.7	1.4	18	1.5	1.5	25	11
7	13	5.9	6.1	1.5	4.5	5.1	1.2	8.1	1.5	2.9	12	14
8	9.7	5.5	4.8	1.5	4.2	4.8	1.5	6.9	1.6	1.9	5.9	15
9	5.3	5.4	5.2	2.0	3.8	4.3	1.4	6.8	2.1	1.2	11	9.5
10	4.5	5.5	5.6	3.0	4.3	4.9	1.2	6.8	2.7	.53	1,120	8.2
11	3.2	6.0	4.0	3.0	4.7	4.6	1.1	5.9	3.4	2.6	549	4.4
12	3.3	5.9	5.9	3.0	4.8	4.4	1.0	6.2	7.7	3.6	112	3.0
13	3.7	5.4	5.2	2.0	4.1	3.8	2.1	9.3	5.6	2.3	26	1.9
14	3.9	5.2	5.6	2.0	2.4	3.8	2.3	8.0	2.3	1.9	11	1.6
15	4.2	5.4	4.7	3.0	3.4	3.8	3.1	5.3	1.9	1.6	102	1.5
16	4.7	5.4	5.1	3.0	4.9	4.1	2.1	4.6	2.6	2.6	95	1.8
17	4.1	5.5	5.2	3.5	4.8	4.1	1.2	4.7	2.5	1.7	53	2.9
18	3.9	5.4	4.9	3.5	3.5	3.7	5.4	4.1	1.9	1.3	12	21
19	4.0	5.5	5.1	4.0	3.2	3.1	3.0	4.0	1.5	1.1	6.6	9.2
20	3.8	5.3	5.4	5.0	6.2	3.0	6.0	3.4	1.3	1.7	3.5	2.5
21	4.1	5.0	3.6	6.0	5.7	2.1	5.6	2.0	1.2	2.5	3.4	1.8
22	4.2	4.7	4.6	6.0	3.2	2.0	6.2	1.9	4.8	1.9	2.0	1.8
23	4.2	4.1	5.2	5.0	4.7	2.0	6.4	1.9	4.2	2.1	1.2	1.8
24	4.7	4.1	5.2	6.0	7.0	3.0	7.2	2.1	5.3	2.7	3.5	2.0
25	4.5	4.7	5.3	9.0	7.0	3.4	4.0	2.3	10	1.6	3.1	1.9
26	3.7	4.9	5.1	13	7.9	3.3	3.5	2.7	6.4	26	4.3	2.0
27	3.9	4.6	4.4	13	7.0	3.0	3.0	3.4	3.6	28	9.8	1.8
28	4.4	4.9	4.0	12	6.4	2.5	5.9	3.1	2.5	86	17	1.6
29	5.3	4.9	4.0	11	4.4	2.1	10	2.1	5.1	61	15	1.5
30	5.8	4.5	3.5	7.8	------	2.8	8.1	1.8	3.0	7.9	16	1.5
31	7.2	------	3.0	5.5	------	2.6	------	1.9	------	4.2	22	------
TOTAL	157.2	160.1	150.5	147.3	147.0	113.8	107.9	183.0	95.6	265.73	2,366.4	172.9
MEAN	5.07	5.34	4.85	4.75	5.07	3.67	3.60	5.90	3.19	8.57	76.3	5.76
MAX	13	6.5	6.1	13	7.9	5.1	10	40	10	86	1,120	21
MIN	3.2	4.1	3.0	1.5	2.4	2.0	1.0	1.8	1.2	.53	1.2	1.5
AC-FT	312	318	299	292	292	226	214	363	190	527	4,690	343

CAL YR 1967 : TOTAL 10,236.2 MEAN 28.0 MAX 1,380 MIN 1.0 AC-FT 20,300
WTR YR 1968 : TOTAL 4,067.43 MEAN 11.1 MAX 1,120 MIN .53 AC-FT 8,070

6-8535. Republican River near Hardy, Nebr.

Location.--Lat 40°00', long 97°56', in sec. 6, T. 1 S., R. 5 W., in Kansas, Republic County, at downstream side of highway bridge, 1¼ miles southwest of Hardy and at mile 145.1.

Drainage area.--22,400 sq mi, approximately, of which a large area does not contribute directly to surface runoff.

Records available.--June 1904 to September 1915 (no winter records), April 1931 to September 1968. Prior to May 1932, published as "at Bostwick". Records for June 1896 to November 1903 published as "near Superior" in 18th to 22nd Ann. Repts., inclusive, Pt. 4, and WSP 75, 84, and 99, have been found to be unreliable and should not be used.

Gage.--Digital water-stage recorder. Datum of gage is 1,501.46 ft above mean sea level, datum of 1929. Prior to May 19, 1932, chain gages at site at Bostwick, 20 miles upstream at different datum. May 19, 1932 to Sept. 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--37 years (1913-14, 1932-68), 685 cfs (495,900 acre-ft per year).

Extremes.--Maximum discharge during year, 1,820 cfs Apr. 14 (gage height, 6.59 ft); minimum, 22 cfs July 12.
1904-15, 1931-68: Maximum discharge, about 225,000 cfs June 2, 1935 (gage height, 19.4 ft), based on records for stations upstream; no flow Aug. 9-19, 1934.
Maximum stages since at least 1895, that of June 2, 1935, and 17.00 ft June 24, 1947 (discharge, 100,000 cfs, based on records for upstream stations).

Remarks.--Records excellent except those for winter months, which are poor. Natural flow affected by irrigation development above station and by storage in six reservoirs in Colorado and Nebraska.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	151	149	65	160	408	1,020	313	156	43	102	248
2	64	150	147	60	170	421	1,030	309	150	95	90	240
3	63	151	145	60	177	408	1,040	301	141	105	83	234
4	59	147	143	60	207	289	1,060	293	132	90	73	244
5	85	148	142	60	265	223	1,030	289	125	71	71	258
6	83	148	139	55	269	198	1,030	273	118	62	54	230
7	134	147	137	55	273	183	938	365	115	52	45	198
8	188	148	138	65	269	180	675	830	118	43	42	171
9	108	148	143	80	317	171	630	460	125	36	52	147
10	82	151	145	80	345	162	615	361	138	31	73	130
11	71	150	140	75	353	153	620	325	153	26	198	122
12	65	150	141	70	353	150	615	325	180	23	1,440	115
13	62	146	135	70	341	144	698	325	141	27	605	112
14	57	146	130	70	345	141	1,320	329	110	49	361	105
15	55	146	126	80	361	141	660	337	92	35	281	98
16	52	144	131	90	412	135	580	273	223	35	600	734
17	90	142	148	100	394	132	535	216	373	55	660	421
18	178	141	152	110	381	128	435	202	381	177	345	198
19	178	142	144	115	381	128	394	209	381	145	195	180
20	164	140	141	120	394	125	403	209	408	144	174	141
21	158	142	139	130	365	125	417	209	440	128	192	128
22	155	142	87	140	309	125	450	216	435	108	159	122
23	153	144	107	140	269	128	565	226	258	77	132	174
24	150	142	123	140	377	128	435	230	135	174	108	162
25	144	143	131	145	408	329	361	226	95	902	100	138
26	143	144	111	150	495	896	341	240	83	337	102	120
27	145	143	100	150	510	938	333	244	112	240	147	112
28	144	143	95	150	426	974	329	226	92	251	345	105
29	146	145	85	150	408	987	325	212	63	240	223	102
30	148	145	80	150	------	1,000	321	171	47	153	216	100
31	150	------	70	150	------	1,010	------	162	------	122	223	------
TOTAL	3,538	4,369	3,944	3,135	9,739	10,660	19,255	8,906	5,520	4,126	7,491	5,589
MEAN	114	146	127	101	336	344	642	287	184	133	242	186
MAX	188	151	152	150	510	1,010	1,320	830	440	902	1,440	734
MIN	52	140	70	55	160	125	321	162	47	23	42	98
AC-FT	7,020	8,670	7,820	6,220	19,320	21,140	38,190	17,660	10,950	8,180	14,860	11,090

CAL YR 1967: TOTAL 210,518 MEAN 577 MAX 4,210 MIN 52 AC-FT 417,600
WTR YR 1968: TOTAL 86,272 MEAN 236 MAX 1,440 MIN 23 AC-FT 171,100

6-8538. White Rock Creek near Burr Oak, Kans.

Location.--Lat 39°53'55", long 98°15'05", in NE¼ sec. 7, T. 2 S., R. 8 W., on right bank 500 ft upstream from highway bridge, 3½ miles northeast of Burr Oak, Jewell County, and 39 miles upstream from mouth.

Drainage area.--224 sq mi.

Records available.--October 1954 to September 1957 (low-flow measurements), October 1957 to September 1968.

Gage.--Digital water-stage recorder and concrete control. Datum of gage is 1,601.5 ft above mean sea level (levels by Bureau of Reclamation). Prior to Oct. 1, 1960 graphic water-stage recorder at same site and datum.

Average discharge.--11 years, 25.6 cfs (18,530 acre-ft per year).

Extremes.--Maximum discharge during year, 832 cfs Sept. 16 (gage height, 11.86 ft); no flow July 13-15.
1957-68: Maximum discharge, 4,940 cfs June 6, 1961 (gage height, 18.96 ft); no flow at times in 1957-59, 1964, 1966, 1968.
Maximum stage known since at least 1869, 32.6 ft July 9, 1950, from floodmark 300 ft downstream and information by local resident.

Remarks.--Records good except those for winter periods, which are poor.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.12	1.2	.64	.40	1.2	1.2	.43	.49	.52	.13	.27	.16
2	.12	1.2	.67	.40	1.2	1.2	.37	.44	.49	.11	.19	.11
3	.12	1.2	.62	.40	1.2	1.0	.41	.45	.45	.11	.14	.08
4	.10	1.1	.67	.40	1.2	1.0	.37	.44	.47	.09	.11	.07
5	.13	1.1	.64	.35	1.1	.97	.39	.53	.40	.08	.09	.07
6	14	.96	.61	.35	1.0	.94	.37	.56	.37	.08	.08	.07
7	1.2	.60	.60	.35	.96	.93	.36	.72	.40	.07	.07	.06
8	1.6	.56	.59	.40	1.0	.92	.36	.78	.36	.05	.06	.05
9	.52	.56	.67	.60	1.0	.86	.35	.64	.45	.04	.05	.05
10	.42	.54	.74	.65	1.0	.84	.29	.64	.59	.03	.04	.05
11	.37	.54	.72	.65	.92	.80	.29	.95	2.5	.02	.03	.05
12	.31	.54	.74	.65	.92	.83	.31	1.2	.51	.02	.02	.05
13	.30	.60	.62	.65	.84	.82	.72	1.0	1.2	0	.01	.04
14	.35	.64	.58	.63	.84	.78	3.4	1.2	89	0	.01	.03
15	.42	.66	.56	.60	.92	.81	1.4	1.0	3.0	0	97	.02
16	.42	.65	.87	.70	1.0	.69	.61	.98	5.8	.03	291	312
17	.50	.73	1.0	.96	.96	1.1	.48	1.0	20	3.7	26	90
18	.54	.70	.94	.92	.88	1.1	.49	1.1	1.1	3.1	3.2	6.2
19	.56	.68	.85	.93	1.0	.64	.86	1.2	.45	.35	.87	1.1
20	.58	.68	.85	.97	1.0	.58	5.3	1.2	.48	.20	.34	.33
21	.64	.73	.74	1.0	.90	.52	.97	1.1	.26	.15	.24	.19
22	.84	.72	.55	1.1	.90	.56	6.2	1.2	.23	.11	.18	.13
23	.88	.70	.70	.90	1.0	.50	5.6	1.3	.20	169	.14	.12
24	.88	.67	.65	.85	1.1	.52	1.3	1.3	.19	159	.13	100
25	.92	.59	.55	.94	1.2	.52	1.4	1.3	.17	18	.12	15
26	1.0	.57	.55	1.1	1.3	.50	1.0	1.4	.17	2.7	.08	1.5
27	1.0	.53	.55	1.0	1.2	.48	.72	1.2	.16	1.4	39	.35
28	1.0	.56	.55	1.0	1.3	.44	.65	1.0	.15	66	31	.17
29	1.1	.61	.45	1.2	1.1	.42	.60	.85	.15	8.7	.81	.13
30	1.2	.66	.45	.92	------	.40	.59	.54	.14	1.7	.60	.08
31	1.2	------	.40	1.1	------	.42	------	.53	------	.60	.21	------
TOTAL	33.34	21.78	20.42	24.07	30.14	23.29	36.59	28.29	130.36	435.57	492.09	528.26
MEAN	1.08	.73	.66	.74	1.04	.75	1.22	.91	4.35	14.1	15.9	17.6
MAX	14	1.2	1.0	1.2	1.3	1.2	6.2	1.4	89	169	291	312
MIN	.10	.53	.40	.35	.84	.40	.29	.44	.14	0	.01	.02
AC-FT	66	43	40	46	60	46	73	56	259	864	976	1,050

CAL YR 1967: TOTAL 5,945.63 MEAN 16.3 MAX 1,380 MIN .08 AC-FT 11,790
WTR YR 1968: TOTAL 1,803.10 MEAN 4.93 MAX 312 MIN 0 AC-FT 3,580

PEAK DISCHARGE (BASE, 1,000 CFS).--NO PEAK ABOVE BASE.

6-8539. Lovewell Reservoir near Lovewell, Kans.

Location.--Lat 39°54', long 98°02', in SE¼ sec. 6, T. 2 S., R. 6 W., at north end of Lovewell Dam on White Rock Creek, 3 miles northwest of Lovewell, Jewell County, and 20 miles upstream from mouth.

Drainage area.--342 sq mi.

Records available.--May 1957 to September 1968. Monthly records only, May to September 1957.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bureau of Reclamation). Prior to June 15, 1960, water-stage recorder at south end of dam at same datum.

Extremes.--Maximum elevation during year, 1,583.38 ft June 19 (contents, 44,060 acre-ft); minimum, 1,575.84 ft Sept. 30 (contents, 24,640 acre-ft).
1957-68: Maximum elevation, 1,588.93 ft June 9, 1961 (contents, 63,630 acre-ft); minimum since irrigation pool was first filled, 1,563.70 ft Oct. 1, 2, 1957 (contents, 6,350 acre-ft).

Remarks.--Reservoir is formed by earth-fill dam. Closure was made May 29, 1957. Total capacity of 186,290 acre-ft consists of the following: dead storage, 5,050 acre-ft below elevation 1,562.07 ft; irrigation pool, 36,640 acre-ft between elevations 1,562.07 and 1,582.6 ft; flood control pool, 50,460 acre-ft between elevations 1,582.6 and 1,595.3 ft; surcharge, 94,140 acre-ft between elevations 1,595.3 and 1,610.3 ft. Storage in reservoir is derived from White Rock Creek and from diversion from the Republican River through upper Courtland Canal. Releases are made into White Rock Creek and for irrigation into lower Courtland Canal. Figures given herein represent elevations above mean sea level.

Capacity table (elevation, in feet, and contents in acre-feet)

1,575	22,910
1,576	24,980
1,578	29,480
1,580	34,440
1,582	39,920
1,584	46,020

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79.36	81.91	81.75	81.79	81.83	81.84	81.63	81.83	81.98	82.47	80.62	82.25
2	79.54	81.92	81.76	81.79	81.83	81.83	81.73	81.83	82.03	82.38	80.87	82.22
3	79.71	81.92	81.75	81.79	81.84	81.82	81.79	81.82	82.07	82.24	81.12	82.23
4	79.88	81.91	81.74	81.78	81.84	81.84	81.72	81.82	82.10	82.12	81.33	82.18
5	80.04	81.90	81.74	81.77	81.83	81.83	81.68	81.79	82.13	82.02	81.44	82.03
6	82.28	81.90	81.77	81.76	81.84	81.82	81.69	81.77	82.16	81.89	81.49	81.87
7	80.43	81.88	81.74	81.75	81.84	81.81	81.70	81.78	82.20	81.75	81.47	81.65
8	80.60	81.88	81.70	81.77	81.84	81.85	81.68	81.77	82.32	81.62	81.35	81.38
9	80.78	81.88	81.75	81.77	81.84	81.83	81.67	81.78	82.45	81.46	81.16	81.13
10	80.95	81.88	81.75	81.76	81.83	81.80	81.66	81.75	82.53	81.24	81.12	80.89
11	81.13	81.87	81.78	81.76	81.83	81.79	81.68	81.80	82.59	81.02	81.18	80.64
12	81.31	81.87	81.77	81.77	81.81	81.79	81.72	81.85	82.61	80.78	81.28	80.38
13	81.46	81.86	81.75	81.77	81.81	81.77	81.74	81.81	82.86	80.57	81.34	80.13
14	81.64	81.86	81.74	81.77	81.81	81.82	81.73	81.85	83.09	80.33	81.32	79.86
15	81.80	81.85	81.74	81.78	81.81	81.82	81.74	81.85	83.13	80.10	81.47	79.60
16	81.90	81.85	81.79	81.77	81.82	81.80	81.76	81.77	83.26	79.88	81.70	80.33
17	81.93	81.85	81.81	81.77	81.81	81.80	81.70	81.75	83.33	79.87	81.82	80.37
18	81.95	81.84	81.80	81.77	81.80	81.80	81.71	81.71	83.37	79.82	82.02	80.13
19	81.99	81.81	81.80	81.76	81.80	81.79	81.83	81.71	83.38	79.79	82.35	79.88
20	81.99	81.83	81.83	81.76	81.80	81.76	81.81	81.74	83.32	79.79	82.33	79.56
21	81.99	81.81	81.80	81.76	81.79	81.74	81.80	81.71	83.16	79.78	82.31	79.19
22	82.00	81.81	81.78	81.77	81.79	81.71	81.93	81.70	83.02	79.76	82.28	78.86
23	82.02	81.80	81.77	81.78	81.79	81.71	81.92	81.73	82.85	79.66	82.24	78.59
24	82.01	81.80	81.80	81.78	81.82	81.72	81.87	81.78	82.80	79.73	82.21	78.20
25	81.98	81.80	81.77	81.79	81.83	81.73	81.82	81.81	82.78	79.68	82.17	77.83
26	81.97	81.78	81.76	81.79	81.85	81.73	81.85	81.81	82.72	79.57	82.11	77.41
27	81.93	81.77	81.78	81.79	81.85	81.72	81.85	81.88	82.68	79.53	82.11	76.99
28	81.94	81.75	81.78	81.81	81.84	81.71	81.85	81.87	82.67	79.53	82.15	76.55
29	81.94	81.75	81.79	81.83	81.83	81.68	81.85	81.83	82.63	79.88	82.24	76.09
30	81.90	81.75	81.79	81.83	------	81.67	81.85	81.88	82.54	80.17	82.27	75.84
31	81.90	------	81.79	81.83	------	81.65	------	81.95	------	80.35	82.27	------
MAX	82.28	81.92	81.83	81.83	81.85	81.85	81.93	81.95	83.38	82.47	82.35	82.25
MIN	79.36	81.75	81.70	81.75	81.79	81.65	81.63	81.70	81.98	79.53	80.62	75.84
(+)	39,630	39,200	39,320	39,430	39,430	38,920	39,490	39,780	41,510	35,350	40,710	24,640
(±)	+7,280	-430	+120	+110	0	-510	+570	+290	+1,730	-6,160	+5,360	-16,070

CAL YR 1967 ..... (±) -2,160
WTR YR 1968 ..... (±) -7,710

\+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
± CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 1,500 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.

6-8540. White Rock Creek at Lovewell, Kans.

Location.--Lat 39°53'10", long 98°01'20", in NW¼ sec.17, T. 2 S., R. 6 W., on right bank 1,400 ft east of Lovewell Dam, 2.5 miles northwest of Lovewell, Jewell County, and 19.5 miles upstream from mouth.

Drainage area.--342 sq mi.

Records available.--October 1945 to September 1968. Monthly discharge only for some periods, published in WSP 1310.

Gage.--Digital water-stage recorder and concrete control. Datum of gage is 1,531.52 ft above mean sea level (Bureau of Reclamation bench mark). May 21, 1946 to Sept. 13, 1947, wire-weight gage, and Sept. 14, 1947 to Apr. 23, 1951, graphic water-stage recorder, at site 3 miles downstream at datum 1,513.95 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Apr. 24, 1951 to Nov. 8, 1952, wire-weight gage, and Nov. 9, 1952 to June 14, 1960, graphic water-stage recorder, at site 2 miles downstream at datum 1,519.53 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 559 cfs Sept. 24 (gage height, 5.13 ft); minimum daily, 0.10 cfs for several days.
1945-68: Maximum discharge, 23,300 cfs July 10, 1950 (gage height, 21.62 ft, site and datum then in use), from rating curve extended above 5,200 cfs on basis of logarithmic plotting and discharge measurement of 20,800 cfs made at site about 6 miles upstream; no flow at times in 1948, 1953-61, 66, 67.
Maximum stage known since 1870, that of July 10, 1950, from information by local residents.

Remarks.--Records good. Flow regulated by Lovewell Reservoir beginning May 29, 1957 (see Sta. no. 8539). Large flows from Republican River enter Lovewell Reservoir from upper Courtland Canal. Diversions above station for irrigation.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.15	.10	.16	.18	.18	.78	.19	2.0	.15	.18	.25	.2
2	.15	.18	.19	.15	.18	.31	.17	.30	.15	2.4	.33	.2
3	.96	.20	.18	.15	.18	.23	1.0	.18	.12	.55	.22	.2
4	.25	.18	2.4	.15	.18	.23	.29	.21	3.0	.24	.12	61
5	.30	.18	.66	.15	.65	.23	.17	.22	.34	.32	3.9	196
6	.47	.59	.56	.15	.28	.23	.17	.23	.16	.69	.38	267
7	.28	.68	.35	.15	.18	.21	.16	.36	.12	.65	.16	315
8	.18	.63	.27	.15	.18	.19	.12	.25	.29	.42	.29	326
9	.24	.50	.31	.15	.18	.18	.22	.22	.38	.41	.36	327
10	.18	.85	.32	.15	.19	.21	.19	.22	1.9	.96	.57	331
11	.13	.60	.26	.15	.18	.21	.16	.30	.41	.96	.23	322
12	.12	.41	.24	.15	.19	.18	.16	.34	.24	1.3	.16	324
13	.13	.39	.18	.15	.18	.17	.26	.35	1.7	1.8	.40	327
14	.19	2.1	.18	.15	.18	.15	.20	.39	1.3	1.6	.75	329
15	.26	.76	.18	.14	.18	.17	.18	.24	.23	1.3	1.0	322
16	.25	.67	.22	.12	.18	.18	.18	.22	.52	.85	.26	371
17	.21	.77	.35	.12	.18	.14	.18	.22	.33	1.9	.18	366
18	.21	1.0	.21	.12	.18	.11	.18	.27	.24	3.1	.75	360
19	.23	1.0	.18	.12	.22	.11	.18	.18	.18	.92	43	345
20	.22	.63	.19	.12	.26	.10	.18	.15	117	.23	.26	442
21	.21	.33	.14	.12	.26	.12	.18	.14	202	.13	.13	534
22	.16	.27	.12	.14	.26	.20	.18	.26	201	.16	.11	522
23	.12	.22	.12	.14	.26	.18	.18	.24	196	.36	.10	531
24	.13	.23	.13	.15	.26	.17	.18	.22	42	.21	.10	532
25	.12	.19	.18	.15	.26	.14	.35	.29	.31	.13	.13	531
26	.15	.15	.18	.15	.24	.65	.54	.29	.15	.15	.15	507
27	.15	.15	.21	.15	.20	.28	.61	.18	.15	.40	.99	482
28	.17	.15	.22	.17	.22	.16	.63	.18	.17	.22	1.0	499
29	.21	.15	.15	.18	.17	.15	.54	.26	.19	.14	.40	485
30	.13	.15	.18	.18	------	.21	.53	.24	.13	.13	.37	221
31	.10	------	.22	.18	------	.19	------	.18	------	.34	.25	------
TOTAL	6.76	14.41	9.44	4.58	6.44	6.77	8.46	9.33	770.86	23.15	57.30	10,175.6
MEAN	.22	.48	.30	.15	.22	.22	.28	.30	25.7	.75	1.85	339
MAX	.96	2.1	2.4	.18	.65	.78	1.0	2.0	202	3.1	43	534
MIN	.10	.10	.12	.12	.17	.10	.12	.14	.12	.13	.10	.20
AC-FT	13	29	19	9.1	13	13	17	19	1,530	46	114	20,180

CAL YR 1967: TOTAL 10,287.02 MEAN 28.2 MAX 593 MIN 0 AC-FT 20,400
WTR YR 1968: TOTAL 11,093.10 MEAN 30.3 MAX 534 MIN .10 AC-FT 22,000

6-8545. Republican River at Scandia, Kans.

Location.--Lat 39°48'00", long 97°47'20", on north line sec. 17, T. 3 S., R. 4 W., at downstream side of bridge on U.S. Highway 36 at Scandia, Republic County, 4 miles downstream from Dry Creek and at mile 125.2.

Drainage area.--22,930 sq mi, approximately, of which a large area does not contribute directly to surface runoff.

Records available.--August 1919 to September 1925, August 1928 to September 1944, October 1950 to September 1968. Monthly discharge only for some periods, published in WSP 1310.

Gage.--Digital water-stage recorder. Datum of gage is 1,422.91 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Mar. 31, 1938, staff, chain, or wire-weight gages at site 700 ft downstream at same datum. Mar. 31, 1938 to Apr. 29, 1952, wire-weight gage, and Apr. 30, 1952 to Sept. 30, 1963, graphic water-stage recorder at present site and datum.

Average discharge.--40 years, 723 cfs (523,400 acre-ft per year).

Extremes.--Maximum discharge during year, 14,900 cfs Aug. 19 (gage height, 11.43 ft); minimum, 42 cfs Aug. 26.
1919-25, 1928-44, 1950-68: Maximum discharge, 215,000 cfs June 2, 1935 (gage height, 17.8 ft, from floodmarks), from rating curve extended above 30,000 cfs on basis of velocity-area studies; no flow Aug. 9-21, 1934.
Maximum stages known since at least 1895 are those of June 2, 1935; 15.0 ft June 24, 1947 (discharge, 78,500 cfs, from indirect measurement of peak flow); and 14.2 ft June 20, 1915 (from floodmark).

Remarks.--Records good except those for winter months, which are poor. Natural flow affected by irrigation development above station and by storage in seven reservoirs in Colorado, Nebraska, and Kansas. Records of chemical analyses and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	175	185	105	280	455	992	340	197	72	290	290
2	103	193	186	100	280	440	999	345	192	78	272	300
3	100	190	188	100	285	425	1,070	340	188	145	229	299
4	106	191	192	95	293	380	1,040	335	183	159	209	304
5	411	187	190	95	326	280	1,020	335	175	158	188	329
6	291	179	204	95	354	236	1,020	335	171	146	166	521
7	177	175	205	95	345	224	1,010	340	162	148	143	602
8	216	179	203	95	339	216	800	674	158	141	134	591
9	199	178	218	95	349	208	692	575	191	163	176	574
10	143	181	219	95	395	200	674	435	493	135	393	566
11	124	178	194	100	417	188	668	385	380	122	257	559
12	112	175	178	100	439	184	674	375	242	116	843	549
13	106	168	168	105	441	180	710	385	259	148	1,020	547
14	106	168	161	105	439	176	1,130	400	951	162	506	543
15	102	168	152	110	437	168	788	400	261	189	474	549
16	98	168	162	120	438	160	602	385	173	168	742	1,920
17	98	168	210	130	440	152	555	295	358	203	810	2,120
18	134	168	220	135	418	144	510	245	393	224	624	804
19	194	169	208	145	427	136	450	228	396	314	7,590	638
20	191	169	181	155	438	128	465	228	394	272	675	556
21	183	167	168	165	430	120	440	232	545	229	330	644
22	184	166	165	170	430	114	540	240	616	222	196	660
23	190	166	160	170	420	114	520	245	566	222	132	851
24	179	172	160	170	420	108	545	260	416	230	93	862
25	171	167	160	170	420	102	420	261	235	763	68	778
26	168	164	155	170	450	570	365	272	139	674	49	746
27	166	161	150	200	460	890	360	275	127	532	379	711
28	165	157	145	230	460	932	355	272	138	449	1,990	701
29	171	168	140	250	460	950	350	256	108	463	502	716
30	171	174	120	260	------	978	345	236	91	397	454	692
31	175	------	115	270	------	985	------	202	------	359	309	------
TOTAL	5,043	5,189	5,462	4,400	11,530	10,543	20,109	10,131	8,898	7,803	20,243	20,522
MEAN	163	173	176	142	398	340	670	327	297	252	653	684
MAX	411	193	220	270	460	985	1,130	674	951	763	7,590	2,120
MIN	98	157	115	95	280	102	345	202	91	72	49	290
AC-FT	10,000	10,290	10,830	8,730	22,870	20,910	39,890	20,090	17,650	15,480	40,150	40,700

CAL YR 1967: TOTAL 233,384 MEAN 639 MAX 4,300 MIN 98 AC-FT 462,900
WTR YR 1968: TOTAL 129,873 MEAN 355 MAX 7,590 MIN 49 AC-FT 257,600

6-8558. Buffalo Creek near Jamestown, Kans.

Location.--Lat 39°37'00", long 97°51'20", on west line sec. 14, T. 5 S., R. 5 W., at downstream side of highway bridge, 1.1 miles north of Jamestown, Cloud County, and 21 miles upstream from mouth.

Drainage area.--330 sq mi, approximately.

Records available.--October 1953 to June 1959 (low flow partial record). July 1959 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,373.66 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1964, graphic water-stage recorder and Oct. 1, 1964 to June 6, 1966 digital water-stage recorder both at present site and datum. June 7, 1966 to Feb. 3, 1967 wire-weight gage at site 5.4 miles downstream at different datum. Feb. 4, 1967 to May 3, 1967 wire-weight gage and May 4-16, 1967 graphic water-stage recorder, both at present site and datum.

Average discharge.--9 years, 63.7 cfs (46,120 acre-ft per year).

Extremes.--Maximum discharge during year, 2,660 cfs Aug. 20 (gage height, 17.91 ft); minimum daily, 1.0 cfs Aug. 9.
1959-68: Maximum discharge, 18,800 cfs Sept. 12, 1961 (gage height, 19.31 ft); no flow at times in 1959, 1964-66.
Maximum stages known since at least 1898, 18.5 ft in 1948, from information by local resident, and that of Sept. 12, 1961.

Remarks.--Records good except those for winter months, which are poor. Some diversions above station for irrigation. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.7	3.4	3.2	2.4	4.2	11	2.5	2.4	1.8	8.1	2.0	30
2	6.5	3.9	7.7	2.3	3.9	12	2.0	2.2	1.9	2.5	10	20
3	3.9	10	6.1	2.2	3.7	13	2.6	2.6	1.7	1.7	20	10
4	3.3	6.8	3.3	2.1	3.7	4.6	31	2.4	1.6	1.3	20	7.0
5	4.8	3.5	3.3	2.0	3.6	6.1	4.6	2.0	1.5	1.4	10	5.0
6	8.4	3.6	3.4	2.0	14	4.2	2.4	2.0	1.6	1.3	5.0	4.0
7	23	4.4	8.4	2.0	14	3.2	5.0	2.4	1.5	1.5	3.0	1,830
8	19	3.3	3.6	2.0	3.9	8.7	3.7	2.2	3.2	1.4	2.0	1,160
9	9.4	3.3	3.6	2.1	3.4	7.4	2.3	2.0	490	1.7	1.0	567
10	9.0	3.3	6.8	2.2	4.1	3.7	2.3	1.9	692	1.4	88	358
11	2.9	3.3	5.3	2.3	3.7	3.6	2.0	2.0	566	5.1	57	129
12	2.6	3.3	5.0	2.4	3.6	6.5	1.9	1.9	282	7.4	46	78
13	5.3	3.3	4.4	2.5	3.4	3.3	3.9	4.6	200	8.1	34	51
14	5.5	3.3	3.5	2.6	3.1	2.4	4.2	82	161	9.5	18	35
15	69	3.0	3.2	2.7	3.0	2.5	2.9	20	289	5.2	20	29
16	11	3.0	3.0	2.9	3.0	2.6	2.4	6.8	301	6.7	35	283
17	7.1	3.3	4.8	3.1	2.9	2.2	2.3	2.7	499	20	31	517
18	5.5	3.9	8.4	3.4	2.8	2.2	2.2	2.3	218	20	19	478
19	3.6	3.5	6.8	3.8	2.7	2.7	2.4	2.6	137	9.7	131	339
20	3.3	3.2	5.0	5.1	2.5	4.6	8.1	2.0	136	9.7	2,020	176
21	3.3	3.4	4.0	5.3	2.5	3.7	5.8	1.9	96	2.4	1,480	96
22	3.0	4.2	3.5	7.7	2.6	3.0	7.1	2.0	72	2.2	818	54
23	2.9	3.6	3.2	6.5	2.7	3.0	41	2.4	46	9.6	400	75
24	28	5.1	3.0	4.2	2.8	2.3	8.4	2.2	31	15	200	93
25	9.0	4.6	2.8	4.2	2.9	2.2	3.3	2.3	40	15	100	89
26	3.5	3.9	2.6	4.6	3.0	2.2	3.0	2.4	52	10	50	76
27	5.3	2.9	2.5	4.2	3.2	2.2	2.7	2.3	29	5.0	30	76
28	3.6	2.8	2.5	4.2	3.4	2.4	2.5	2.0	16	4.0	20	73
29	4.4	2.8	2.5	4.2	10	2.6	2.4	2.0	8.3	3.0	50	51
30	9.4	2.9	2.5	4.4	------	2.3	2.4	2.0	15	2.0	50	28
31	4.6	------	2.4	4.6	------	3.6	------	1.9	------	2.0	30	------
TOTAL	289.8	114.8	130.3	106.2	122.3	136.0	169.3	172.4	4,391.1	193.9	5,800.0	6,817.0
MEAN	9.35	3.83	4.20	3.43	4.22	4.39	5.64	5.56	146	6.25	187	227
MAX	69	10	8.4	7.7	14	13	41	82	692	20	2,020	1,830
MIN	2.6	2.8	2.4	2.0	2.5	2.2	1.9	1.9	1.5	1.3	1.0	4.0
AC-FT	575	228	258	211	243	270	336	342	8,710	385	11,500	13,520

CAL YR 1967 TOTAL 19,932.82 MEAN 54.6 MAX 1,460 MIN .01 AC-FT 39,540
WTR YR 1968 TOTAL 18,443.1 MEAN 50.4 MAX 2,020 MIN 1.0 AC-FT 36,580

PEAK DISCHARGE (BASE, 800 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8-20	1100	17.91	2,660	9-7	0800	17.62	2,180

6-8559. Wolf Creek near Concordia, Kans.

Location.--Lat 39°32'50", long 97°43'20", on west line sec. 12, T. 6 S., R. 4 W., at downstream side of bridge on State Highway 9, 3.8 miles southwest of Concordia, Cloud County, and about 8 miles upstream from mouth.

Drainage area.--56 sq mi, approximately.

Records available.--April 1962 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,375.43 ft above mean sea level, datum of 1929. Prior to Oct. 13, 1965, graphic water-stage recorder at same site and datum.

Average discharge.--6 years, 7.20 cfs (5,210 acre-ft per year).

Extremes.--Maximum discharge during year, 2,800 cfs Aug. 10 (gage height, 17.25 ft); no flow Aug. 9.
1962-68: Maximum discharge, that of Aug. 10, 1968; no flow at times each year.

Remarks.--Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	2.0	1.5	1.0	2.1	1.8	.75	1.4	1.7	.30	.06	6.2
2	4.9	2.1	1.6	1.0	1.9	1.8	.78	1.3	1.7	.30	.55	3.7
3	4.1	2.4	1.5	1.0	1.9	1.6	.90	1.3	1.5	.30	.96	3.1
4	3.4	3.1	1.4	1.0	1.7	1.5	.97	1.2	1.3	.30	1.6	6.2
5	3.0	3.1	1.4	1.0	1.5	1.5	.93	1.1	1.1	.30	.45	4.9
6	2.8	2.5	1.4	1.1	1.4	1.5	.91	.99	.98	.40	.14	12
7	9.2	2.2	1.4	1.1	1.3	1.4	.88	.99	.94	.50	.06	101
8	9.3	2.2	1.4	1.1	1.2	1.6	.84	1.0	.90	.52	.01	6.6
9	5.4	2.3	1.6	1.1	1.1	1.6	.75	1.1	1.1	.50	0	3.1
10	3.8	2.3	2.1	1.2	1.1	1.6	.63	1.1	23	.32	1,080	1.7
11	3.0	2.3	2.3	1.2	1.1	1.6	.61	.85	26	.18	411	.91
12	2.8	2.3	2.5	1.3	1.1	1.4	.58	.82	6.6	1.3	13	.48
13	2.6	2.0	2.2	1.4	1.1	1.2	.69	.81	1.8	.42	6.0	.16
14	2.5	1.9	1.8	1.5	1.1	1.1	.77	7.8	1.5	.16	3.9	.11
15	2.3	1.8	1.5	1.4	1.1	.83	.70	9.7	1.7	.08	3.3	.07
16	2.2	1.7	1.2	1.4	1.1	.75	.69	1.7	4.0	.06	3.3	60
17	2.0	1.7	1.7	1.5	1.1	.74	.69	1.1	3.5	.22	3.5	40
18	2.0	1.7	2.5	1.5	1.2	.69	.69	.89	3.0	.16	2.8	6.4
19	1.9	1.6	2.8	1.6	1.2	.73	.81	.80	2.6	.38	2.6	2.4
20	1.8	1.5	2.5	1.7	1.2	.74	.93	.77	1.8	1.4	3.0	1.1
21	1.8	1.5	2.0	1.8	1.3	.73	1.0	.72	1.4	.85	2.7	.72
22	1.7	1.6	1.8	1.9	1.4	.75	75	2.5	.86	.20	2.1	.49
23	1.7	1.6	1.7	1.9	1.4	.69	12	23	.64	.08	1.6	6.4
24	3.1	1.6	1.6	2.0	1.5	.73	3.7	4.6	.52	.98	1.3	17
25	2.3	1.6	1.5	2.2	1.6	.74	2.7	2.7	.52	.26	1.3	4.1
26	2.1	1.4	1.4	2.8	1.9	.76	2.0	2.5	.68	.10	.96	1.5
27	1.8	1.3	1.3	2.8	2.1	.81	1.9	2.5	.64	.16	30	1.1
28	1.7	1.2	1.2	2.8	2.2	.76	1.7	2.3	.60	.12	63	.72
29	1.8	1.2	1.1	3.1	2.0	.78	1.6	2.0	.48	.09	23	1.0
30	1.8	1.3	1.0	2.9	------	.77	1.5	1.7	.38	.07	30	2.7
31	1.9	------	1.0	2.6	------	.77	------	1.6	------	.06	9.9	------
TOTAL	96.1	57.0	51.9	51.9	41.9	33.97	118.60	82.84	93.44	11.07	1,702.09	295.86
MEAN	3.10	1.90	1.67	1.67	1.44	1.10	3.95	2.67	3.11	.36	54.9	9.86
MAX	9.3	3.1	2.8	3.1	2.2	1.8	75	23	26	1.4	1,080	101
MIN	1.7	1.2	1.0	1.0	1.1	.69	.58	.72	.38	.06	0	.07
AC-FT	191	113	103	103	83	67	235	164	185	22	3,380	587

CAL YR 1967 TOTAL 8,011.19 MEAN 21.9 MAX 1,150 MIN 0 AC-FT 15,890
WTR YR 1968 TOTAL 2,636.67 MEAN 7.20 MAX 1,080 MIN 0 AC-FT 5,230

PEAK DISCHARGE (BASE, 250 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8-10	1330	17.25	2,800	9-7	0245	10.01	306

6-8560. Republican River at Concordia, Kans.

Location.--Lat 39°35'30", long 97°39'30", near center of sec. 28, T. 5 S., R. 3 W., at right downstream side of bridge on U.S. Highway 81, 1 mile north of Concordia, Cloud County, 3.4 miles downstream from Buffalo Creek, and at mile 102.4.

Drainage area.--23,540 sq mi, approximately, of which a large part is probably noncontributing.

Records available.--October 1945 to September 1968. Monthly discharge only for some periods, published in WSP 1310. Gage-height records collected at nearby sites since 1931 are contained in reports of U.S. Weather Bureau.

Gage.--Digital water-stage recorder. Datum of gage is 1,333.62 ft above mean sea level, datum of 1929. Prior to Oct. 8, 1947, wire-weight gage, and Oct. 8, 1947 to Sept. 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--23 years, 824 cfs (596,600 acre-ft per year).

Extremes.--Maximum discharge during year, 14,300 cfs Aug. 19 (gage height, 10.58 ft); minimum daily, 100 cfs Jan. 3-11.
1945-68: Maximum discharge, 75,000 cfs June 25, 1947 (gage height, 14.90 ft); minimum, 8.0 cfs Sept. 2, 3, 1953.
Maximum stage known since at least 1895, about 18 ft June 2, 1935, present site and datum, from information by U.S. Weather Bureau (discharge, about 207,000 cfs, on basis of records for stations upstream). Flood of June 21, 1915, reached a stage of 14.1 ft, present site and datum, from information by U.S. Weather Bureau (discharge, about 60,000 cfs).

Remarks.--Records good except those for winter months, which are poor. Natural flow affected by irrigation development above station and by storage in seven reservoirs in Colorado, Nebraska, and Kansas. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	232	194	196	115	311	464	972	348	228	173	405	481
2	216	199	196	105	264	422	1,010	336	220	162	372	425
3	205	201	193	100	304	400	1,080	324	213	170	412	397
4	197	198	189	100	314	400	1,070	310	205	213	324	444
5	192	198	186	100	311	344	1,030	303	195	220	298	393
6	411	199	183	100	351	282	1,010	299	190	250	270	351
7	309	196	180	100	359	261	1,010	310	185	248	243	1,950
8	237	197	180	100	374	248	965	310	183	245	217	2,160
9	278	196	183	100	375	238	734	741	434	245	214	1,570
10	236	194	199	100	394	235	664	524	1,340	240	1,290	1,090
11	200	194	196	100	427	228	626	410	1,580	217	1,920	798
12	182	191	196	105	441	223	608	352	923	207	497	576
13	170	202	193	110	474	215	644	344	548	206	1,270	506
14	161	200	180	110	509	210	671	410	860	236	821	478
15	214	199	183	115	530	205	1,210	428	1,130	248	632	458
16	199	198	183	125	537	198	741	375	596	277	700	933
17	167	200	200	135	507	188	620	336	762	307	916	4,460
18	152	200	229	150	503	185	566	285	874	369	857	1,840
19	187	194	229	160	497	183	524	264	638	359	7,760	1,260
20	214	196	215	170	487	180	512	261	566	376	5,040	980
21	207	201	200	175	472	178	494	258	506	322	2,340	770
22	200	196	200	180	418	178	566	261	664	279	1,930	809
23	199	196	195	180	385	175	632	282	713	271	1,310	788
24	210	202	195	180	375	178	596	276	602	284	1,020	1,080
25	214	201	195	180	518	178	554	276	400	345	823	902
26	209	201	195	185	554	180	440	279	270	1,050	580	825
27	198	202	190	200	584	678	400	276	240	949	364	770
28	190	199	190	210	608	867	385	276	223	770	2,570	703
29	193	196	180	230	530	930	370	267	213	539	1,320	700
30	194	198	140	265	------	958	356	258	190	513	936	682
31	192	------	125	319	------	979	------	245	------	434	678	------
TOTAL	6,565	5,938	5,894	4,604	12,713	10,788	21,060	10,224	15,891	10,724	38,329	29,579
MEAN	212	198	190	149	438	348	702	330	530	346	1,236	986
MAX	411	202	229	319	608	979	1,210	741	1,580	1,050	7,760	4,460
MIN	152	191	125	100	264	175	356	245	183	162	214	351
AC-FT	13,020	11,780	11,690	9,130	25,220	21,400	41,770	20,280	31,520	21,270	76,020	58,670

CAL YR 1967 TOTAL 292,038 MEAN 800 MAX 6,600 MIN 125 AC-FT 579,200
WTR YR 1968 TOTAL 172,309 MEAN 471 MAX 7,760 MIN 100 AC-FT 341,800

6-8566. Republican River at Clay Center, Kans.

Location.--Lat 39°21'20", long 97°07'34", in SW¼ sec. 17, T. 8 S., R. 3 E., at downstream side of bridge on State Highway 15, 1 mile south of Clay Center, Clay County, 4 miles downstream from Five Creeks, and at mile 42.1.

Drainage area.--24,570 sq mi, approximately, of which a large area is noncontributing.

Records available.--June 1917 to September 1968. Monthly discharge only for some periods, published in WSP 1310. Prior to February 1934, published as "at Wakefield." Gage-height records collected in this vicinity August 1904 to October 1917 are contained in reports of U.S. Weather Bureau.

Gage.--Digital water-stage recorder. Datum of gage is 1,159.21 ft above mean sea level, datum of 1929. June 21, 1917 to Feb. 14, 1934, chain gage at Wakefield, 15½ miles downstream at datum 39.88 ft lower. Feb. 8, 1934 to June 2, 1935, graphic water-stage recorder, June 3, 1935 to May 7, 1936, chain gage, May 8, 1936 to Jan. 18, 1949, graphic water-stage recorder, Jan. 19 to Sept. 22, 1949, wire-weight gage, and Sept. 23, 1949 to Sept. 30, 1962, graphic water-stage recorder, all at present site and datum.

Average discharge.--51 years, 1,048 cfs (758,700 acre-ft per year).

Extremes.--Maximum discharge during year, 10,100 cfs Aug. 11 (gage height, 15.65 ft); minimum daily, 100 cfs Jan. 4-10.
1917-68: Maximum discharge, 195,000 cfs June 3, 1935 (gage height, 25.74 ft, from floodmarks), from rating curve extended above 61,000 cfs on basis of velocity-area studies; no flow for part of Aug. 10, 1934; minimum daily, 1 cfs Aug. 9-11, 1934.
Maximum stage known since at least 1895, 26.2 ft June 21, 1915, site and datum then in use, from information by U.S. Weather Bureau. Flood of May 29, 1903, reached a stage of 24.8 ft, site and datum then in use, from information by U.S. Weather Bureau.

Remarks.--Records good except those for winter months, which are poor. Natural flow affected by irrigation development above station and by reservoirs in Colorado, Nebraska, and Kansas.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	495	300	260	130	335	616	854	434	350	238	955	1,110
2	446	309	260	120	350	554	896	416	299	221	1,190	821
3	415	317	264	110	326	536	1,050	398	269	197	2,270	701
4	390	323	262	100	308	512	1,450	392	253	177	1,020	880
5	378	326	255	100	317	506	1,060	430	242	186	671	1,040
6	582	313	255	100	326	494	1,020	420	231	240	481	974
7	2,090	310	255	100	326	428	1,010	410	224	265	390	729
8	1,150	306	253	100	355	380	982	410	221	259	339	1,330
9	569	302	254	100	365	355	966	410	217	235	302	2,160
10	428	288	255	100	375	335	826	450	224	220	2,100	1,770
11	406	288	259	105	386	317	728	640	707	220	8,130	1,280
12	366	285	262	105	410	303	686	512	1,730	223	3,850	1,020
13	336	281	267	110	440	290	679	458	1,110	207	1,380	792
14	318	277	265	115	470	281	686	942	717	192	1,250	679
15	298	282	254	120	476	277	672	942	567	186	1,210	616
16	350	284	242	125	458	269	990	644	1,440	212	872	621
17	532	282	261	130	476	261	882	518	803	246	868	976
18	413	286	268	135	470	253	700	452	671	256	870	4,840
19	343	277	278	140	506	249	658	398	860	267	884	2,530
20	318	272	292	145	494	242	889	350	706	296	3,870	1,560
21	323	269	294	150	554	235	770	330	649	296	5,480	1,200
22	334	267	273	155	530	231	651	350	570	294	2,420	976
23	329	268	236	160	525	228	875	375	545	266	1,970	930
24	324	264	214	165	525	228	805	350	625	1,350	1,420	1,310
25	351	264	224	170	525	228	665	370	606	1,340	1,120	1,300
26	348	264	228	175	540	228	658	345	511	761	944	1,080
27	335	256	217	190	540	224	574	335	406	3,870	788	921
28	325	259	189	200	570	253	512	330	322	2,800	739	862
29	320	260	190	225	637	651	506	321	280	1,220	3,230	806
30	306	260	160	250	------	763	464	317	254	886	2,300	757
31	300	------	140	290	------	812	------	317	------	1,540	1,400	------
TOTAL	14,218	8,539	7,586	4,420	12,915	11,539	24,164	13,766	16,609	19,166	54,713	36,571
MEAN	459	285	245	143	445	372	805	444	554	618	1,765	1,219
MAX	2,090	326	294	290	637	812	1,450	942	1,730	3,870	8,130	4,840
MIN	298	256	140	100	308	224	464	317	217	177	302	616
AC-FT	28,200	16,940	15,050	8,770	25,620	22,890	47,930	27,300	32,940	38,020	108,500	72,540

CAL YR 1967: TOTAL 392,783 MEAN 1,076 MAX 15,500 MIN 120 AC-FT 779,100
WTR YR 1968: TOTAL 224,206 MEAN 613 MAX 8,130 MIN 100 AC-FT 444,700

6-8570.5 Milford Reservoir near Junction City, Kans.

Location.--Lat 39°04'40", long 96°53'30", in SE¼ sec. 20, T. 11 S., R. 5 E., in control tower of dam on Republican River, 5 miles northwest of Junction City.

Drainage area.--24,903 sq mi.

Records available.--December 1966 to September 1968.

Gage.--Water-stage recorder.

Extremes.--Maximum elevation during year, 1149.81 ft Oct. 8 (contents 509,300 acre-ft); minimum, 1142.00 ft June 29 (contents, 377,700 acre-ft).
1967-68: Maximum elevation, that of Oct. 8, 1967; minimum since conservation pool first filled, that of June 29, 1968.

Remarks.--Reservoir is formed by compacted earth-fill dam. Storage began Jan. 16, 1967. Total capacity 1,380,000 acre-ft below elevation 1182.0 ft. Crest of uncontrolled spillway is at elevation 1173.6 ft. Storage capacity of 673,600 acre-ft above elevation 1144.4 ft is provided for flood control. Storage capacity of 415,400 acre-ft below elevation 1144.4 ft is provided for conservation and recreation.

Capacity table (elevation, in feet, and contents, in acre-feet)

1,142	377,700	1,148	476,400
1,144	408,900	1,150	512,800
1,146	441,800		

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49.35	46.54	44.04	44.39	44.66	45.23	44.25	44.39	42.88	42.12	44.36	48.03
2	49.25	46.36	44.02	44.40	44.67	45.26	44.19	44.42	42.91	42.12	44.78	47.97
3	49.10	46.07	43.97	44.37	44.69	45.26	44.48	44.43	42.94	42.10	44.99	48.03
4	49.00	45.81	44.04	44.35	44.72	45.28	44.41	44.45	42.97	42.09	45.07	48.01
5	48.86	45.54	44.07	44.37	44.73	45.28	44.35	44.42	43.00	42.26	45.08	48.03
6	49.06	45.30	44.13	44.35	44.76	45.31	44.27	44.37	43.00	42.26	45.00	48.13
7	48.76	45.06	44.10	44.32	44.75	45.29	44.37	44.52	42.97	42.24	44.93	48.01
8	49.75	44.89	44.15	44.33	44.76	45.42	44.35	44.60	42.86	42.27	44.86	48.12
9	49.67	44.75	44.18	44.34	44.78	45.45	44.28	44.55	42.74	42.31	44.77	48.19
10	49.52	44.66	44.17	44.34	44.81	45.49	44.24	44.53	42.86	42.31	45.06	48.31
11	49.36	44.51	44.21	44.37	44.80	45.58	44.22	44.50	42.77	42.29	45.86	48.36
12	49.33	44.41	44.26	44.37	44.87	45.51	44.28	44.47	42.94	42.29	46.25	48.39
13	49.14	44.33	44.25	44.36	44.85	45.46	44.43	44.58	43.00	42.27	46.31	48.36
14	49.05	44.30	44.27	44.37	44.87	45.55	44.35	44.49	42.90	42.24	46.32	48.33
15	48.93	44.26	44.26	44.36	44.88	45.57	44.31	44.56	42.83	42.27	46.31	48.27
16	48.76	44.25	44.23	44.37	44.92	45.55	44.52	44.50	42.81	42.22	46.35	48.32
17	48.67	44.24	44.31	44.38	44.90	45.50	44.63	44.40	42.71	42.44	46.33	48.30
18	48.54	44.19	44.35	44.38	44.80	45.64	44.53	44.43	42.65	42.46	46.31	48.66
19	48.41	44.15	44.36	44.37	44.97	45.68	44.48	44.25	42.60	42.46	46.30	48.88
20	48.33	44.14	44.47	44.39	44.91	45.66	44.50	44.13	42.48	42.46	46.43	48.91
21	48.28	44.15	44.48	44.39	44.97	45.60	44.47	43.98	42.40	42.47	47.03	48.96
22	48.24	44.05	44.42	44.42	44.98	45.57	44.57	43.94	42.24	42.49	47.20	49.01
23	48.12	44.03	44.43	44.43	44.96	45.43	44.42	43.91	42.13	42.51	47.38	49.14
24	47.95	44.00	44.43	44.45	44.98	45.20	44.38	43.82	42.11	42.86	47.54	49.16
25	47.90	43.96	44.43	44.48	45.06	45.02	44.41	43.64	42.23	43.00	47.56	49.19
26	47.90	43.92	44.43	44.50	45.09	44.69	44.40	43.54	42.08	43.08	47.56	49.25
27	47.72	43.89	44.44	44.54	45.15	44.61	44.44	43.27	42.06	43.44	47.59	49.23
28	47.42	43.88	44.43	44.56	45.26	44.43	44.42	43.12	42.04	43.80	47.60	49.24
29	47.29	43.96	44.42	44.62	45.17	44.37	44.41	42.98	42.00	43.91	47.79	49.21
30	47.01	43.94	44.42	44.62	------	44.44	44.40	42.85	42.12	43.98	48.00	49.17
31	46.76	------	44.38	44.66	------	44.32	------	42.85	------	44.19	48.03	------
MAX	49.75	46.54	44.44	44.66	45.26	45.68	44.63	44.60	43.00	44.19	48.03	49.25
MIN	46.76	43.88	43.97	44.32	44.66	44.32	44.19	42.85	42.00	42.09	44.36	47.97
(+)	454,750	407,950	415,030	419,580	427,940	414,060	415,350	390,760	379,530	411,960	476,960	497,500
(±)	-48,750	-46,800	+7,080	+4,550	+8,360	-13,880	+1,290	-24,590	-11,230	+32,430	+65,000	+20,540

CAL YR 1967 ..... (±) +405,540
WTR YR 1968 ..... (±) -6,000

\+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
± CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 1,100 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.

6-8571. Republican River below Milford Dam, Kans.

Location.--Lat 39°04'15", long 96°52'00", at downstream side of bridge on U.S. Highway 77, 2.5 miles northwest of Junction City, Geary County, at mile 6.0.

Drainage area.--24,950 sq mi, approximately, of which a large area is noncontributing.

Records available.--October 1963 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,052.50 ft above mean sea level, Corps of Engineers bench mark.

Average discharge.--5 years, 675 cfs (488,700 acre-ft per year).

Extremes.--Maximum discharge during year, 2,940 cfs Oct. 24 (gage height, 16.44 ft); minimum daily, 33 cfs June 6.
1963-68: Maximum discharge, 17,200 cfs June 22, 1964 (gage height, 22.10 ft); minimum daily, 9.0 cfs Oct. 9, 1966.

Remarks.--Records good. Natural flow affected by irrigation development above station and by reservoirs in Colorado, Nebraska, and Kansas. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,540	2,400	86	218	248	340	1,030	574	104	60	75	894
2	1,540	2,360	98	218	244	339	1,030	410	80	65	136	898
3	1,540	2,350	99	216	243	338	1,040	250	74	61	95	555
4	1,540	2,390	104	217	243	341	1,020	241	60	100	81	537
5	1,530	2,350	109	219	246	345	1,020	240	41	105	658	536
6	1,520	2,330	107	258	244	203	1,030	251	33	101	913	538
7	1,570	2,090	104	254	240	114	1,030	242	361	93	905	519
8	1,510	1,480	101	180	243	103	1,180	231	830	93	892	877
9	1,540	1,470	101	150	248	94	1,390	453	842	91	891	534
10	1,550	1,460	99	144	246	84	1,170	715	845	87	889	544
11	1,530	1,450	100	129	247	83	635	707	829	87	881	555
12	1,550	1,440	96	132	252	80	611	706	468	89	884	525
13	1,560	1,050	92	132	251	81	601	711	763	75	892	569
14	1,550	525	89	133	254	84	589	844	1,280	67	898	650
15	1,530	506	89	131	282	114	596	974	1,270	61	901	877
16	1,530	502	91	126	337	247	611	973	1,270	59	738	590
17	1,540	476	96	129	339	244	764	972	1,260	66	897	520
18	1,510	482	97	131	340	246	1,030	974	1,270	57	910	545
19	1,520	480	89	128	346	243	1,030	962	1,270	56	902	620
20	960	480	90	126	344	238	1,020	1,080	1,280	55	905	563
21	476	477	155	121	339	236	1,020	1,240	1,290	55	585	562
22	428	485	216	129	340	320	1,030	1,330	1,300	55	649	887
23	1,700	485	220	127	343	1,050	1,020	1,320	1,300	56	378	725
24	1,970	480	224	124	342	1,830	1,030	1,270	782	56	89	625
25	461	479	227	122	341	1,810	778	1,280	475	55	596	566
26	429	473	224	125	340	1,810	594	1,270	460	53	527	559
27	1,600	220	223	128	339	1,810	583	1,280	340	55	496	580
28	2,420	80	221	133	342	1,580	584	1,280	118	54	480	563
29	2,390	86	221	186	335	1,170	580	1,270	115	53	787	899
30	2,350	87	221	246	------	1,040	576	1,290	106	47	879	574
31	2,350	------	219	250	------	1,040	------	612	------	46	878	------
TOTAL	46,734	31,423	4,308	5,062	8,498	17,657	26,222	25,941	20,530	2,212	20,687	18,981
MEAN	1,508	1,047	139	163	293	570	874	837	684	71.4	667	633
MAX	2,420	2,400	227	258	346	1,830	1,390	1,330	1,300	105	913	899
MIN	428	80	86	121	240	80	576	231	33	46	75	519
AC-FT	92,700	62,330	8,540	10,040	16,860	35,020	52,010	51,450	40,720	4,390	41,030	37,650

CAL YR 1967: TOTAL 204,498 MEAN 560 MAX 2,420 MIN 20 AC-FT 405,600
WTR YR 1968: TOTAL 228,255 MEAN 624 MAX 2,420 MIN 33 AC-FT 452,700

6-8585. North Fork Smoky Hill River near McAllaster, Kans.

Location.--Lat 39°01', long 101°21', in NW¼ sec. 17, T. 12 S., R. 36 W., at downstream side of bridge on U.S. Highway 40, 3 miles east of McAllaster, Logan County.

Drainage area.--670 sq mi, approximately.

Records available.--October 1946 to September 1953, July 1959 to September 1968. Monthly discharge only for some periods, published in WSP 1310.

Gage.--Water-stage recorder. Datum of gage is 3,070.27 ft above mean sea level, datum of 1929. Jan. 12 to July 17, 1947, wire-weight gage and July 18, 1947 to Sept. 30, 1953, water-stage recorder, at site 2 miles upstream at datum 15.75 ft higher.

Average discharge.--16 years, 5.72 cfs (4,140 acre-ft per year).

Extremes.--Maximum discharge during year, 260 cfs June 16 (gage height, 6.42 ft); no flow for many days.
1946-53; 1959-68: Maximum discharge, 21,700 cfs June 8, 1962 (gage height, 10.40 ft inside; 11.7 ft from floodmarks), from rating curve extended above 350 cfs on basis of contracted-opening measurement of peak flow; no flow at times in most years.
Flood in 1930 reached a stage of 14.4 ft (datum at former site) at railroad bridge 2 miles upstream, from information by Union Pacific Railroad Company (discharge not determined).
Maximum stage known, about 16 ft (former site and datum), date unknown, from information by local resident.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	.13	.51	.15	0	.30	0	0	0
2	0	0	0	0	.13	.45	.15	0	.27	0	0	0
3	0	0	0	0	.13	.45	.13	0	.15	0	0	0
4	0	0	0	0	.15	.45	.13	0	.06	0	0	0
5	0	0	0	0	.15	.45	.18	0	0	0	0	0
6	0	0	0	0	.13	.58	.21	0	0	0	0	0
7	0	0	0	0	.13	.67	.09	0	0	0	0	0
8	0	0	0	0	.15	.45	.11	0	0	0	0	0
9	0	0	0	0	.21	.45	.05	0	0	0	0	0
10	0	0	0	0	.24	.51	.01	0	0	0	1.4	0
11	0	0	0	0	.21	.45	0	.03	0	0	.14	0
12	0	0	0	0	.21	.39	0	.18	0	0	.02	0
13	0	0	0	0	.24	.45	0	.21	0	0	0	0
14	0	0	0	0	.30	.39	0	.15	0	0	4.9	0
15	0	0	0	0	.27	.30	0	.09	0	0	36	0
16	0	0	0	0	.27	.18	0	.07	80	0	3.5	0
17	0	0	0	0	.30	.21	0	.07	27	0	2.4	0
18	0	0	0	0	.34	.13	0	.05	19	0	1.0	0
19	0	0	0	0	.34	.06	0	.05	6.7	31	.45	0
20	0	0	0	0	.39	.03	0	.05	2.8	1.8	.21	0
21	0	0	0	0	.34	.11	0	0	1.3	.25	.05	0
22	0	0	0	0	.39	.15	0	0	1.0	.03	0	0
23	0	0	0	0	.39	.18	.06	0	48	0	0	0
24	0	0	0	0	.51	.15	.04	.05	8.5	0	0	0
25	0	0	0	0	.51	.13	0	.10	1.9	0	0	0
26	0	0	0	0	.39	.18	0	.21	1.0	0	0	0
27	0	0	0	.03	.39	.15	0	.30	.76	0	0	0
28	0	0	0	.06	.39	.07	0	.15	.45	0	0	0
29	0	0	0	.11	.45	.04	0	.11	.13	0	0	0
30	0	0	0	.11	------	.04	0	.05	.02	0	0	0
31	0	------	0	.09	------	.07	------	.18	------	0	0	------
TOTAL	0	0	0	0.40	8.18	8.83	1.31	2.10	199.34	33.08	50.07	0
MEAN	0	0	0	.013	.28	.28	.044	.068	6.64	1.07	1.62	0
MAX	0	0	0	.11	.51	.67	.21	.30	80	31	36	0
MIN	0	0	0	0	.13	.04	0	0	0	0	0	0
AC-FT	0	0	0	.8	16	18	2.6	4.2	395	66	99	0

CAL YR 1967: TOTAL 223.20 MEAN 0.61 MAX 38 MIN 0 AC-FT 444
WTR YR 1968: TOTAL 303.31 MEAN 0.83 MAX 80 MIN 0 AC-FT 602

PEAK DISCHARGE (BASE, 300 CFS).--NO PEAK ABOVE BASE.

6-8595. Ladder Creek below Chalk Creek near Scott City, Kans.

Location.--Lat 38°47', long 100°52', in SW¼ sec. 34, T. 14 S., R. 32 W., at downstream side of county highway bridge, 1¼ miles upstream from mouth, 5 miles downstream from Chalk Creek, and 23 miles northeast of Scott City, Logan County.

Drainage area.--1,460 sq mi, approximately.

Records available.--April 1951 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 2,639.73 ft above mean sea level, datum of 1929. Prior to Oct. 17, 1951, wire-weight gage at same site and datum. Oct. 17, 1951 to Sept. 30, 1963, graphic water-stage recorder at same site and datum.

Average discharge.--17 years, 10.1 cfs (7,600 acre-ft per year).

Extremes.--Maximum discharge during year, 942 cfs June 17 (gage height, 6.48 ft); no flow at times.
1951-68: Maximum discharge, 8,650 cfs July 11, 1951 (gage height, 12.32 ft, from floodmark), from rating curve extended above 4,200 cfs on basis of contracted-opening and flow-over-road measurement of peak flow; no flow at times.
Maximum stage known since at least 1900, 16.1 ft Aug. 6, 1933 (discharge, 42,000 cfs, from rating extended above 4,200 cfs on basis of velocity-area study) augmented by failure of dam at Lake McBride, from information by local residents.

Remarks.--Records good except those for winter months, which are poor. Occasional regulation of low flow by Lake McBride, 10 miles above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.50	.27	2.3	1.8	3.9	3.1	1.4	1.7	1.5	.31	.53	.06
2	.60	.26	1.8	1.8	4.1	2.9	5.6	1.8	1.2	.31	.44	.04
3	.60	.34	1.5	2.0	4.8	2.8	5.3	1.5	1.2	.24	.38	.04
4	.25	.29	1.8	2.5	3.8	2.8	3.2	1.4	1.2	.23	.36	.03
5	.10	.13	1.9	2.5	3.9	2.7	1.3	1.7	1.1	.15	.22	.03
6	.10	.20	2.3	2.0	4.1	2.5	2.0	6.2	2.4	.17	.10	.02
7	.14	.18	2.3	2.0	4.5	3.5	3.3	6.0	1.3	.10	.09	.01
8	.07	.23	2.6	2.5	5.2	6.4	1.5	2.3	.88	.09	.08	.02
9	.05	.22	2.4	2.5	5.2	1.8	.97	1.2	.71	.08	43	.01
10	.03	.16	2.1	2.5	5.1	1.5	.90	2.5	1.1	.07	164	0
11	.09	.11	2.0	2.5	4.8	1.7	.99	6.0	.91	.06	76	0
12	.15	.10	1.8	3.0	4.5	2.2	2.6	6.1	.67	.05	24	0
13	.10	.10	1.8	3.0	4.8	1.8	2.2	8.7	.43	.05	6.7	0
14	.07	.14	1.8	3.5	6.0	3.6	1.4	9.1	.53	.04	2.4	0
15	.02	.16	1.8	3.5	6.0	1.7	1.0	8.5	.78	.03	1.6	0
16	0	.16	1.8	3.5	6.0	1.3	1.3	3.6	31	.03	1.2	.01
17	.01	.11	1.8	3.5	6.6	3.0	1.3	2.9	368	.03	.93	0
18	.01	.10	1.8	3.3	7.1	4.0	1.2	2.8	28	.02	.80	0
19	.01	.22	2.8	3.5	6.9	1.6	1.3	2.4	19	.01	.97	0
20	.01	.28	2.8	3.7	4.6	1.2	2.0	1.9	8.6	0	.51	0
21	.01	.34	2.0	3.5	4.0	1.1	2.1	2.5	4.5	0	.32	0
22	.01	.40	1.8	3.9	5.0	1.3	3.8	4.2	2.0	.02	.20	0
23	.04	.40	2.4	4.2	7.0	1.7	1.6	3.2	3.2	.04	.19	.13
24	.05	.49	3.2	4.4	4.7	2.0	1.1	2.5	.68	.08	.19	.06
25	.05	.52	2.4	4.8	3.2	2.3	1.3	2.7	.96	1.2	.10	.05
26	.09	.57	3.2	4.5	2.7	2.1	1.6	2.7	.67	.74	.08	.04
27	.10	.50	2.4	4.1	2.7	2.6	1.5	2.4	.49	.42	.07	.03
28	.16	.61	2.6	4.1	2.7	1.6	2.1	1.9	.46	.40	.07	.02
29	.22	1.2	2.4	4.6	2.5	1.8	2.1	1.5	.36	.41	.07	.02
30	.11	1.5	2.0	4.4	------	1.9	2.0	1.7	.30	.31	.08	.02
31	.28	------	1.8	4.4	------	2.2	------	2.3	------	.59	.07	------
TOTAL	4.03	10.29	67.4	102.0	136.4	72.7	59.96	105.9	484.13	6.28	325.75	0.64
MEAN	.13	.34	2.17	3.29	4.70	2.35	2.00	3.42	16.1	.20	10.5	.021
MAX	.60	1.5	3.2	4.8	7.1	6.4	5.6	9.1	368	1.2	164	.13
MIN	0	.10	1.5	1.8	2.5	1.1	.90	1.2	.30	0	.07	0
AC-FT	8.0	20	134	202	271	144	119	210	960	12	646	1.3

CAL YR 1967 TOTAL 951.80 MEAN 2.61 MAX 52 MIN 0 AC-FT 1,890
WTR YR 1968 TOTAL 1,375.48 MEAN 3.76 MAX 368 MIN 0 AC-FT 2,730

PEAK DISCHARGE (BASE, 250 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
6-17	0100	6.48	942	8-10	1500	4.64	355
8-09	2300	4.65	358				

6-8600. Smoky Hill River at Elkader, Kans.

Location.--Lat 38°48', long 100°51', in sec. 34, T. 14 S., R. 32 W., at downstream side of bridge on U.S. Highway 83 at Elkader, Logan County, 0.1 mile downstream from Ladder Creek, and at mile 430.9.

Drainage area.--3,560 sq mi, approximately.

Records available.--October 1939 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 2,624.62 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1964 graphic water-stage recorder, at same site and datum.

Average discharge.--29 years, 42.5 cfs (30,770 acre-ft per year).

Extremes.--Maximum discharge during year, 1,260 cfs Aug. 9 (gage height, 3.92 ft); no flow at times.
1939-68: Maximum discharge, 21,100 cfs June 17, 1955 (gage height, 9.02 ft); no flow at times in most years.
Maximum stage known, 13.2 ft May 30, 1938, from floodmark (discharge, 71,000 cfs, on basis of slope-area measurement of peak flow).

Remarks.--Records good except those for winter months, which are poor. Occasional regulation at low flow by Lake McBride (capacity, 930 acre-ft), 11 miles above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.35	.48	2.3	1.0	2.5	3.2	1.1	2.1	2.5	.95	.68	.10
2	.41	.57	2.3	1.0	2.4	2.8	7.4	2.1	1.6	.95	.77	.05
3	.85	1.1	1.4	1.0	2.8	2.0	5.7	1.6	1.7	.86	.68	.03
4	.81	.92	1.4	1.2	1.7	2.5	2.9	1.6	1.9	.95	.38	.03
5	.67	.78	2.2	1.0	1.6	2.9	1.2	1.8	2.1	1.0	.18	.01
6	.80	.77	2.2	.80	1.7	2.6	2.5	12	5.4	.95	0	0
7	.66	.85	3.1	.80	1.3	5.0	3.0	7.3	3.3	.68	0	0
8	.55	.56	3.6	1.0	1.6	7.2	1.3	2.7	2.1	.50	0	0
9	.53	.57	3.0	1.2	2.0	2.1	.90	1.5	1.4	.38	220	0
10	.56	.53	3.0	1.2	1.6	1.5	.83	3.8	1.9	.26	260	0
11	.85	.47	3.7	1.2	1.6	1.3	.91	8.3	1.4	.18	84	0
12	.99	.46	2.5	1.2	1.3	1.6	2.5	7.6	1.3	.08	28	0
13	.69	.45	2.0	1.5	1.3	1.8	2.4	10	.76	23	12	0
14	.60	.40	2.0	1.5	1.6	4.4	1.2	10	.79	.59	6.8	0
15	.41	.44	2.0	2.0	2.5	1.6	1.0	9.4	1.4	.22	4.4	0
16	.43	.45	2.5	2.0	3.0	1.2	1.1	3.6	11	.07	3.0	0
17	.41	.43	4.0	2.0	2.5	4.5	1.1	3.0	345	0	2.2	0
18	.39	.44	2.0	2.0	2.5	5.0	1.0	2.4	31	0	1.7	0
19	.37	.43	5.5	2.5	4.8	1.7	1.2	2.1	17	0	1.3	0
20	.31	.45	5.0	2.5	2.3	.93	1.6	1.9	12	0	1.1	0
21	.30	.41	3.0	3.0	2.0	1.1	1.8	2.7	7.6	0	.86	0
22	.25	.39	3.0	3.5	2.0	1.0	4.2	4.8	6.0	0	.59	0
23	.26	.40	4.0	4.0	2.5	1.4	1.4	3.5	14	0	.38	.18
24	.22	.39	6.1	5.0	3.4	1.8	1.2	2.5	6.4	0	.30	.26
25	.22	.38	3.0	7.4	2.4	2.4	1.3	2.9	3.7	.77	.34	.18
26	.23	.43	3.5	3.4	1.9	1.4	1.6	2.7	2.2	1.7	.26	.08
27	.22	.53	3.0	3.0	2.3	2.1	2.1	2.2	1.9	.77	.18	.01
28	.23	.61	2.0	2.7	2.8	1.3	2.5	2.0	1.7	.59	.30	0
29	.21	.94	1.4	2.5	3.4	1.4	1.9	2.0	1.3	.59	.34	0
30	.19	1.3	1.2	2.5	------	1.3	2.1	2.5	.95	.46	.26	0
31	.28	------	1.0	2.5	------	1.4	------	3.4	------	.77	.18	------
TOTAL	14.25	17.33	86.9	68.10	65.3	72.43	60.94	126.0	491.30	37.27	631.18	0.93
MEAN	.46	.58	2.80	2.20	2.25	2.34	2.03	4.06	16.4	1.20	20.4	.031
MAX	.99	1.3	6.1	7.4	4.8	7.2	7.4	12	345	23	260	.26
MIN	.19	.38	1.0	.80	1.3	.93	.83	1.5	.76	0	0	0
AC-FT	28	34	172	135	130	144	121	250	974	74	1,250	1.8

CAL YR 1967: TOTAL 3,108.28 MEAN 8.52 MAX 1,010 MIN .19 AC-FT 6,170
WTR YR 1968: TOTAL 1,671.93 MEAN 4.57 MAX 345 MIN 0 AC-FT 3,320

PEAK DISCHARGE (BASE, 700 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8-09	2000	3.92	1,260				

6-8610. Smoky Hill River near Arnold, Kans.

Location.--Lat 38°48'20", long 100°01'20", on west line of sec. 29, T. 14 S., R. 24 W., on right bank near downstream side of highway bridge, 7 miles upstream from headwaters of Cedar Bluff Reservoir, 12 miles north of Arnold, Trego County, and at mile 377.

Drainage area.--5,220 sq mi, approximately.

Records available.--February 1950 to September 1968. Prior to October 1950, published as "near Ransom."

Gage.--Graphic water-stage recorder. Datum of gage is 2,196.13 ft above mean sea level, datum of 1929. Prior to June 25, 1951, graphic water-stage recorder and wire-weight gage at site 7 miles downstream at datum 2,139.26 ft above mean sea level (levels by Bureau of Reclamation). June 26, 1951 to Feb. 21, 1952, staff gage and Feb. 22, 1952 to Dec. 14, 1955, graphic water-stage recorder (high water only) and staff gage, present site and datum, Dec. 15, 1955 to Sept. 30, 1961, graphic water-stage recorder, at site half a mile downstream from present site at datum 5 ft higher than present datum.

Average discharge.--18 years, 91.1 cfs (65,950 acre-ft per year).

Extremes.--Maximum discharge during year, 2,990 cfs Aug. 28 (gage height, 6.36 ft); no flow at times.
1950-68: Maximum discharge, 23,800 cfs June 11, 1951 (gage height, 12.57 ft, site and datum then in use); no flow at times in most years.
Flood of May 30, 1938 reached a stage of about 19 ft present site and datum, from information by local resident.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	.04	.35	.61	1.6	1.4	.16	.04	.01	.43	4.8	37
2	.02	.11	.51	.51	1.2	1.4	.16	.02	0	.35	4.8	23
3	.02	.16	.28	.43	1.6	1.0	.43	.02	0	.22	43	17
4	.02	.07	.35	.51	1.6	1.0	.35	.02	0	.22	22	15
5	.02	.11	.35	.43	1.4	1.4	.22	0	0	.35	12	12
6	.02	.16	.35	.43	1.6	1.2	.11	0	0	119	6.0	11
7	.02	.16	.22	.43	1.0	.86	.22	0	0	46	3.6	48
8	.02	.16	.43	.35	1.2	1.0	.22	0	0	12	1.8	223
9	.04	.16	.61	.35	1.6	1.2	.22	0	.01	4.2	1.6	76
10	.04	.11	.43	.35	1.4	1.2	.22	.25	303	1.8	223	37
11	.04	.16	.43	.35	1.4	1.2	.07	.90	87	4.3	338	22
12	.04	.16	.61	.43	1.2	.73	.07	.28	23	92	232	15
13	.04	.16	.43	.43	.86	.73	.16	.11	8.0	4.8	134	13
14	.04	.16	.43	.35	.86	.73	.11	.02	4.8	1.4	78	11
15	.04	.16	.35	.35	1.2	.61	.07	.02	4.8	.86	38	10
16	0	.22	.35	.43	1.6	.51	.04	.02	7.1	.51	17	12
17	0	.22	.73	.51	1.4	.28	.04	.04	13	.43	12	10
18	0	.22	.73	.73	1.0	.28	.04	0	13	.51	8.7	9.4
19	0	.22	.61	1.0	1.4	.43	.16	0	65	.51	7.4	8.7
20	0	.28	.86	1.2	1.8	.43	.35	0	27	.35	4.2	8.0
21	0	.35	.43	1.4	1.2	.43	.07	0	14	.35	1.6	6.7
22	0	.35	.43	1.8	.61	.43	.11	.07	8.0	19	1.2	6.0
23	0	.35	.43	1.6	1.0	.43	.07	.07	4.2	2.1	1.0	8.7
24	.02	.35	.73	2.1	2.1	.28	.04	.11	2.4	1.0	.73	6.7
25	.02	.28	.86	2.1	2.4	.28	.04	.16	2.1	190	.61	6.0
26	.02	.07	.73	3.2	1.8	.28	.07	.16	1.8	87	.35	5.4
27	.02	.07	.90	2.1	1.6	.28	.07	.07	1.4	22	.43	4.8
28	0	.07	1.0	1.8	1.8	.22	.07	.04	1.2	10	1,390	4.2
29	.04	.35	1.4	1.8	1.4	.22	.04	.01	.51	6.0	425	3.6
30	.07	.43	1.1	1.2	------	.16	.04	0	.51	4.8	178	3.6
31	.07	------	.80	1.6	------	.35	------	.04	------	5.4	70	------
TOTAL	.72	5.87	18.22	30.88	40.83	20.95	4.04	2.47	591.84	637.89	3,260.82	673.8
MEAN	.02	.20	.59	1.00	1.41	.68	.14	.08	19.7	20.6	105	22.5
MAX	.07	.43	1.8	3.2	2.4	1.4	.43	.90	303	190	1,390	223
MIN	0	.04	.22	.35	.61	.16	.04	0	0	.22	.35	3.6
AC-FT	1.4	12	36	61	81	42	8.0	4.9	1,170	1,270	6,470	1,340

CAL YR 1967: TOTAL 10,631.01 MEAN 29.1 MAX 2,380 MIN 0 AC-FT 21,090
WTR YR 1968: TOTAL 5,288.33 MEAN 14.4 MAX 1,390 MIN 0 AC-FT 10,500

PEAK DISCHARGE (BASE, 1,800 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8-28	1800	6.36	2,990				

6-8615. Cedar Bluff Reservoir near Ellis, Kans.

Location.--Lat 38°47', long 99°43', in SW¼ sec. 36, T. 14 S., R. 22 W., on control house structure of outlet works conduit at dam on Smoky Hill River, Trego County, 18 miles southwest of Ellis.

Drainage area.--5,530 sq mi, approximately.

Records available.--November 1950 to September 1968. Monthly records only prior to August 1960.

Gage.--Water-stage recorder and servo-manometer follower. Datum of gage is at mean sea level (levels by Bureau of Reclamation). Prior to Aug. 20, 1960, mercury-column gage at same site and datum.

Extremes.--Maximum elevation during year, 2,139.97 ft Oct. 1, 2 (contents, 158,700 acre-ft); minimum, 2,134.67 ft Aug. 27 (contents, 128,200 acre-ft).
1950-68: Maximum elevation, 2,154.90 ft July 2, 1951, July 4, 5, 1957 (contents, 269,400 acre-ft); minimum elevation since irrigation pool was first filled, 2,127.35 ft Mar. 26-30, 1955 (contents, 93,960 acre-ft).

Remarks.--Reservoir is formed by compacted earth-fill dam; storage began Nov. 13, 1950; dam was completed in 1951. Total capacity, 870,400 acre-ft, consisting of the following: dead storage, 8,260 acre-ft below elevation 2,090 ft (sill of trashrack structure); irrigation pool, 176,800 acre-ft between elevations 2,090 and 2,144 ft; flood control pool, 191,900 acre-ft between elevations 2,144 and 2,166 ft (crest of uncontrolled spillway); and uncontrolled storage, 493,400 acre-ft between elevations 2,166 and 2,200 ft. Reservoir is used to store water for flood control, irrigation, and recreation. Figures given herein represent elevations above mean sea level.

Capacity table (elevation, in feet, and contents, in acre-feet)

2,134	124,700
2,135	129,900
2,136	135,400
2,137	141,000
2,138	146,800
2,139	152,800
2,140	158,900

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39.97	39.40	39.23	38.97	38.98	38.86	38.60	37.81	37.40	36.55	35.09	35.48
2	39.97	39.40	39.20	38.97	38.95	38.82	38.61	37.76	37.42	36.49	35.09	35.46
3	39.96	39.36	39.21	38.98	38.97	38.83	38.61	37.74	37.41	36.41	35.10	35.38
4	39.94	39.36	39.20	39.01	38.94	38.84	38.50	37.70	37.39	36.36	35.11	35.36
5	39.87	39.36	39.16	38.98	38.94	38.82	38.47	37.65	37.36	36.32	35.06	35.35
6	39.88	39.35	39.16	38.95	38.93	38.82	38.49	37.64	37.35	36.26	35.00	35.33
7	39.86	39.35	39.12	38.92	38.92	38.84	38.47	32.65	37.28	36.23	34.97	35.35
8	39.84	39.35	39.14	38.98	38.92	38.83	38.43	37.59	37.22	36.18	34.92	35.37
9	39.84	39.36	39.13	38.97	38.92	38.82	38.40	37.58	37.24	36.11	34.84	35.38
10	39.80	39.35	39.13	38.97	38.90	38.80	38.38	37.61	37.30	36.03	35.20	35.38
11	39.79	39.35	39.14	38.96	38.90	38.77	38.35	37.61	37.35	35.98	35.42	35.36
12	39.81	39.33	39.12	38.96	38.87	38.77	38.30	37.60	37.29	35.92	35.49	35.35
13	39.76	39.33	39.08	38.95	38.87	38.79	38.30	37.61	37.32	35.88	35.52	35.31
14	39.74	39.33	39.06	38.97	38.87	38.80	38.23	37.61	37.26	35.80	35.50	35.27
15	39.68	39.32	39.07	38.96	38.88	38.79	38.19	37.58	37.22	35.71	35.47	35.26
16	39.66	39.33	39.07	38.96	38.87	38.77	38.15	37.56	37.22	35.66	35.42	35.21
17	39.65	39.31	39.08	38.97	38.85	38.80	38.08	37.56	37.21	35.58	35.34	35.22
18	39.64	39.28	39.08	38.96	38.86	38.78	38.04	37.52	37.21	35.52	35.29	35.20
19	39.62	39.32	39.09	38.96	38.87	38.75	38.12	37.49	37.23	35.48	35.24	35.20
20	39.62	39.32	39.11	38.97	38.84	38.70	38.05	37.48	37.20	35.36	35.18	35.17
21	39.59	39.27	39.02	38.97	38.82	38.68	38.02	37.43	37.18	35.33	35.12	35.15
22	39.58	39.27	39.02	38.95	38.82	38.68	37.98	37.43	37.15	35.25	35.05	35.15
23	39.57	39.26	39.05	38.94	38.83	38.68	37.92	37.43	37.11	35.18	34.95	35.15
24	39.53	39.27	39.05	38.97	38.87	38.71	37.90	37.44	37.08	35.08	34.88	35.12
25	39.52	39.25	39.02	38.98	38.87	38.70	37.87	37.44	36.94	35.19	34.82	35.06
26	39.49	39.24	39.01	38.97	38.87	38.70	37.85	37.45	36.86	35.27	34.75	35.04
27	39.45	39.23	39.00	38.97	38.86	38.69	37.83	37.43	36.85	35.24	34.67	35.01
28	39.46	39.21	39.00	39.01	38.83	38.68	37.83	37.42	36.82	35.21	34.85	34.97
29	39.44	39.22	39.00	38.97	38.84	38.68	37.79	37.41	36.77	35.20	35.36	34.95
30	39.42	39.22	38.99	38.97	------	38.65	37.79	37.42	36.65	35.20	35.45	34.94
31	39.40	------	38.97	38.96	------	38.61	------	37.39	------	35.13	35.48	------
MAX	39.97	39.40	39.23	39.01	38.98	38.86	38.61	37.81	37.42	36.55	35.52	35.48
MIN	39.40	39.21	38.97	38.92	38.82	38.61	37.79	37.39	36.65	35.08	34.67	34.94
(+)	155,210	154,110	152,590	152,530	151,810	150,420	145,570	143,250	139,020	130,620	132,510	129,600
(±)	-3,590	-1,100	-1,520	-60	-720	-1,390	-4,850	-2,320	-4,230	-8,400	+1,890	-2,910

CAL YR 1967 ..... (±) -2,110
WTR YR 1968 ..... (±) -29,200

+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
± CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 2,100 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.

6-8620. Smoky Hill River at Cedar Bluff Dam, Kans.

Location.--Lat 38°47'30", long 99°43'20", in W½ sec. 36, T. 14 S., R. 22 W., on right bank a quarter of a mile downstream from Cedar Bluff Dam, Trego County, and 14 miles southwest of Ellis.

Drainage area.--5,530 sq mi, approximately.

Records available.--February 1952 to September 1968.

Gage.--Water-stage recorder and concrete control. Datum of gage is 2,059.14 ft above mean sea level (levels by Bureau of Reclamation).

Average discharge.--16 years, 49.2 cfs (35,620 acre-ft per year).

Extremes.--Maximum discharge during year, 35 cfs June 8 (gage height, 1.89 ft); minimum daily, 0.16 cfs on many days.
1952-68: Maximum discharge, 2,010 cfs July 5, 1957 (gage height, 4.89 ft); no flow at times in most years.

Remarks.--Records poor. Flow completely regulated by Cedar Bluff Reservoir (see station 6-8615). Prior to Nov. 21, 1962, fish hatchery effluent was included in gaged flow. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	.53	.44	.25	.25	.25	.21	.16	.95	16	11	2.0
2	1.1	.59	.47	.25	.25	.25	.21	.16	.92	20	12	2.0
3	1.1	.59	.44	.25	.24	.25	.22	.16	.92	21	12	2.1
4	1.1	.56	.41	.25	.24	.25	.24	.16	.95	21	12	2.1
5	1.1	.56	.41	.25	.24	.26	.22	.16	.95	21	11	2.1
6	1.5	.56	.44	.25	.24	.30	.21	.17	.98	21	11	2.0
7	1.3	.53	.38	.25	.24	.28	.21	.23	4.7	21	12	1.8
8	.98	.53	.36	.25	.24	.28	.21	.27	26	14	11	1.8
9	.95	.50	.41	.25	.24	.27	.20	.33	18	9.7	12	1.8
10	.92	.53	.41	.25	.25	.28	.19	.62	12	9.4	13	1.8
11	.95	.50	.38	.25	.25	.27	.18	.80	7.1	9.4	12	1.8
12	.92	.47	.38	.25	.25	.27	.17	.74	6.4	9.7	12	1.6
13	.89	.47	.36	.25	.25	.27	.16	.77	2.6	9.7	12	1.6
14	.89	.47	.34	.25	.25	.27	.17	.77	2.0	9.7	12	1.6
15	.89	.47	.34	.25	.25	.27	.16	.77	2.0	9.7	12	1.5
16	.86	.47	.36	.25	.25	.27	.16	.77	2.0	9.7	12	1.6
17	.86	.47	.36	.25	.25	.26	.16	.80	1.6	9.7	12	1.5
18	.86	.44	.38	.30	.25	.26	.16	.83	1.6	10	12	1.3
19	.71	.47	.36	.30	.25	.26	.16	.80	1.5	14	13	1.3
20	.65	.47	.33	.30	.25	.26	.17	.83	1.5	16	13	1.1
21	.65	.47	.32	.30	.25	.26	.16	.86	1.3	14	12	1.3
22	.62	.47	.30	.28	.25	.26	.16	.89	1.3	15	12	1.1
23	.65	.47	.25	.27	.25	.26	.18	.92	1.3	13	12	1.6
24	.71	.47	.25	.27	.25	.25	.16	.92	1.3	13	12	2.1
25	.62	.44	.25	.27	.26	.25	.16	.92	1.5	14	13	1.5
26	.62	.44	.25	.26	.26	.24	.16	.92	1.5	13	13	1.3
27	.59	.44	.25	.26	.25	.24	.16	.92	1.3	13	13	1.8
28	.56	.41	.25	.26	.26	.23	.16	.92	1.1	13	14	1.5
29	.59	.41	.25	.26	.25	.23	.16	.89	.98	12	13	1.6
30	.56	.44	.25	.25	------	.22	.16	.92	4.2	11	9.8	1.3
31	.56	------	.25	.25	------	.21	------	.98	------	11	2.9	------
TOTAL	26.56	14.64	10.63	8.08	7.21	7.98	5.39	20.36	110.45	423.7	365.7	49.5
MEAN	.86	.49	.34	.26	.25	.26	.18	.66	3.68	13.7	11.8	1.65
MAX	1.5	.59	.47	.30	.26	.30	.24	.98	26	21	14	2.1
MIN	.56	.41	.25	.25	.24	.21	.16	.16	.92	9.4	2.9	1.1
AC-FT	53	29	21	16	14	16	11	40	219	840	725	98

CAL YR 1967: TOTAL 285.64 MEAN .78 MAX 20 MIN .15 AC-FT 567
WTR YR 1968: TOTAL 1,050.20 MEAN 2.87 MAX 26 MIN .16 AC-FT 2,082

6-8627. Smoky Hill River near Schoenchen, Kans.

Location.--Lat 38°43'30", long 99°23'30", in NW¼NW¼ sec. 25, T. 15 S., R. 19 W., on left bank, 3 miles northwest of Schoenchen, Ellis County, and at mile 334.4.

Drainage area.--5,750 sq mi.

Records available.--July 1964 to September 1968.

Gage.--Digital water-stage recorder. Altitude of gage is 1,940 ft (from topographic map).

Extremes.--Maximum discharge during year, 1,520 cfs Sept. 23 (gage height, 7.09 ft); minimum daily, 7.4 cfs Jan. 7-8.
1964-68: Maximum discharge, 7,390 cfs July 12, 1967 (gage height, 10.99 ft); minimum daily, 4.0 cfs Dec. 18, 1964.

Remarks.--Records good except those for winter months, which are poor. Flow regulated by Cedar Bluff Reservoir (see station 6-8615). Records of chemical analyses and continuous conductivity for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	15	14	9.0	13	12	8.9	12	8.7	9.3	29	23
2	18	15	14	8.6	13	12	9.5	13	8.3	9.6	30	19
3	17	16	14	8.4	14	11	10	12	7.7	14	29	17
4	17	16	14	8.0	13	11	9.6	12	8.0	15	28	17
5	17	15	14	7.7	13	12	10	12	8.3	15	26	16
6	17	15	14	7.5	13	11	10	13	8.5	16	25	14
7	19	15	13	7.4	12	11	9.5	24	8.2	17	23	14
8	17	14	13	7.4	13	10	9.6	16	7.9	16	21	12
9	16	14	13	8.0	13	9.9	9.4	14	12	17	21	11
10	16	14	13	8.4	12	9.9	9.5	15	47	15	22	12
11	17	14	13	9.0	12	9.9	12	19	26	14	30	14
12	17	14	13	9.5	12	10	12	17	19	14	29	14
13	16	13	13	10	12	12	14	15	16	12	27	14
14	16	13	12	10	12	11	14	15	14	11	25	15
15	15	13	12	11	12	11	14	13	13	12	25	15
16	15	13	12	11	12	11	12	12	14	12	24	17
17	15	13	13	11	12	11	11	11	14	12	26	14
18	15	13	13	12	11	12	12	11	13	11	29	12
19	15	13	13	12	12	12	16	11	12	16	28	12
20	15	13	13	12	12	11	16	11	11	14	25	12
21	15	13	13	12	11	11	15	12	10	14	21	14
22	15	13	13	12	10	12	20	13	11	17	22	12
23	15	13	13	13	10	10	16	13	11	18	20	452
24	14	13	13	13	10	9.8	13	12	11	18	22	54
25	14	13	13	13	11	9.4	12	12	10	140	22	23
26	15	13	12	14	12	9.2	12	12	11	122	21	19
27	15	13	11	14	12	9.2	13	11	11	49	20	17
28	15	13	10	14	12	9.0	14	11	9.7	44	27	16
29	16	14	10	14	12	8.6	13	9.6	9.0	40	38	15
30	16	14	10	14	------	8.9	13	9.2	8.6	33	33	15
31	16	------	9.5	13	------	9.1	------	9.1	------	30	30	------
TOTAL	496	413	390.5	333.9	348	326.9	370.0	401.9	378.9	796.9	798	931
MEAN	16.0	13.8	12.6	10.8	12.0	10.5	12.3	13.0	12.6	25.7	25.7	31.0
MAX	20	16	14	14	14	12	20	24	47	140	38	452
MIN	14	13	9.5	7.4	10	8.6	8.9	9.1	7.7	9.3	20	11
AC-FT	984	819	775	662	690	648	734	797	752	1,580	1,580	1,850

CAL YR 1967: TOTAL 17,300.1 MEAN 47.4 MAX 2,870 MIN 8.7 AC-FT 34,310
WTR YR 1968: TOTAL 5,985.0 MEAN 16.4 MAX 452 MIN 7.4 AC-FT 11,870

6-8633. Big Creek near Ogallah, Kans.

Location.--Lat 38°54'40", long 99°44'40", on west line sec. 23, T. 13 S., R. 22 W., at downstream side of bridge on State Highway 147, 5 miles south of Ogallah, Trego County, 9.0 miles upstream from Ogallah Creek, and 10 miles west of Ellis.

Drainage area.--297 sq mi.

Records available.--October 1955 to September 1968 (discontinued).

Gage.--Digital water-stage recorder. Altitude of gage is 2,260 ft (from topographic map). Prior to July 13, 1960, wire-weight and crest-stage gages and July 13, 1960 to Sept. 30, 1964 graphic water-stage recorder at same site and datum.

Average discharge.--13 years, 21.7 cfs (15,710 acre-ft per year).

Extremes.--Maximum discharge during year, 7,880 cfs Aug. 10 (gage height, 15.96 ft); no flow July 17-24.
1955-68: Maximum discharge, 18,500 cfs June 16, 1957 (gage height, 19.02 ft), from rating curve extended above 3,000 cfs on basis of slope-area measurement of peak flow; no flow at times in most years.
Maximum stage known since at least 1914, that of June 16, 1957. Flood in August 1950 reached a stage of about 14 ft, from information by local resident.

Remarks.--Records good, except those for winter periods which are poor.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.45	1.0	.96	.90	2.2	2.4	1.4	.75	1.6	.02	.61	13
2	.33	1.3	.92	.80	1.8	2.4	1.4	.58	1.2	.02	.27	12
3	.24	1.3	.92	.80	2.4	1.8	1.6	.52	.95	.02	.24	11
4	.18	1.3	1.0	.70	1.9	2.2	1.4	.49	.85	.02	.23	8.1
5	.14	1.2	1.1	.70	1.7	2.2	1.0	.49	.85	.05	.15	6.4
6	.36	1.3	1.2	.70	2.0	1.9	1.1	.56	.70	.15	.06	97
7	.64	1.4	.92	.70	1.6	2.1	1.1	.56	.70	.09	.02	88
8	.60	1.4	1.3	.60	1.7	2.7	1.0	.63	.46	.04	.01	5.8
9	.60	1.4	1.4	.60	1.9	2.3	.90	.66	.38	.06	.03	4.7
10	.60	1.4	1.0	.60	1.9	2.1	.95	3.8	1.8	.04	2,140	4.7
11	.64	1.4	1.3	.60	1.7	2.0	.95	4.6	3.4	.04	461	4.1
12	.68	1.3	1.4	.60	1.8	1.9	.90	3.3	50	.06	65	3.9
13	.60	1.1	1.2	.60	1.4	2.2	.90	2.4	17	.03	31	3.9
14	.60	1.1	1.0	.60	1.6	1.9	1.0	1.7	9.0	.02	20	3.4
15	.45	1.0	1.4	1.0	1.8	2.0	1.2	5.6	6.4	.02	15	3.2
16	.24	1.0	1.8	1.4	1.7	1.9	1.2	16	5.2	.01	14	7.1
17	.33	.96	1.8	1.4	1.7	1.7	1.1	8.0	4.5	.01	10	3.3
18	.80	.96	1.8	1.6	1.4	1.8	1.0	5.9	3.5	0	9.0	2.8
19	.64	.96	2.4	1.7	1.8	1.7	1.3	4.2	2.6	0	7.0	2.5
20	.64	1.0	2.4	1.9	2.5	1.7	1.8	3.2	2.2	0	5.6	2.6
21	.68	1.1	1.5	2.2	1.5	1.8	1.8	2.8	1.7	.01	5.0	2.5
22	.68	1.1	1.2	2.5	1.6	1.8	1.6	2.4	1.4	.03	4.3	2.3
23	.72	1.1	1.0	2.5	2.0	1.8	1.4	2.2	1.0	0	3.5	2.7
24	.60	1.1	1.0	2.5	2.5	2.0	1.3	2.2	.83	.02	3.2	2.7
25	.64	1.0	1.0	2.8	2.8	1.7	1.2	2.2	.62	21	3.1	2.9
26	.72	.99	1.0	3.1	2.5	1.7	1.1	2.1	.53	14	2.7	2.3
27	.76	.88	1.1	3.0	2.4	1.8	1.1	2.0	.55	2.3	2.6	2.3
28	.80	.92	1.1	3.1	2.2	1.8	.95	1.8	.40	1.2	3.4	2.1
29	.84	.92	1.1	2.8	1.7	1.5	1.0	1.6	.18	.30	4.3	1.9
30	.88	.96	1.1	2.2	------	1.7	.95	1.3	.06	.23	85	2.0
31	.92	------	1.0	2.4	------	1.4	------	1.6	------	1.5	28	------
TOTAL	18.00	33.85	39.32	47.60	55.7	59.9	35.60	86.14	120.56	41.29	2,924.32	311.2
MEAN	.58	1.13	1.27	1.54	1.92	1.93	1.19	2.78	4.02	1.33	94.3	10.4
MAX	.92	1.4	2.4	3.1	2.8	2.7	1.8	16	50	21	2,140	97
MIN	.14	.88	.92	.60	1.4	1.4	.90	.49	.06	0	.01	1.9
AC-FT	36	67	78	94	110	119	71	171	239	82	5,800	617

CAL YR 1967 TOTAL 1,988.22 MEAN 5.45 MAX 264 MIN .12 AC-FT 3,940
WTR YR 1968 TOTAL 3,773.48 MEAN 10.3 MAX 2,140 MIN 0 AC-FT 7,480

PEAK DISCHARGE (BASE, 1,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8-10	1300	15.96	7,880				

6-8635. Big Creek near Hays, Kans.

Location.--Lat 38°49'02", long 99°15'01", on north line sec. 30, T. 14 S., R. 17 W., at downstream side of county highway bridge, 0.6 miles east of Munjor, 6 miles southeast of Hays, Ellis County, and 38 miles upstream from the mouth.

Drainage area.--542 sq mi.

Records available.--April 1946 to September 1968.

Gage.--Digital water-stage recorder. Altitude of gage is 1,915 ft (from topographic map). Prior to Nov. 20, 1947, wire-weight gage, and Nov. 20, 1947, to Aug. 22, 1965, graphic water-stage recorder and concrete control at site 11 miles upstream at datum 1,955.13 ft above mean sea level, datum of 1929. Aug. 23 to Sept. 30, 1965, graphic water-stage recorder at present site and datum.

Average discharge.--22 years, 47.0 cfs (34,030 acre-ft per year).

Extremes.--Maximum discharge during year, 2,060 cfs Aug. 12 (gage height, 16.90 ft); minimum, 0.60 cfs Aug. 7.
1946-68: Maximum discharge, 22,400 cfs June 17, 1957 (gage height, 22.07 ft), site and datum then in use; no flow at times in some years.
Maximum stage known since at least 1908, that of June 17, 1957, from engineering report by Servis, Van Doren and Hazard Engineers.

Remarks.--Records good. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	3.6	3.8	2.8	9.5	5.8	1.8	3.6	6.0	.84	3.3	12
2	2.6	4.1	4.3	2.5	11	5.0	2.1	3.5	3.5	.90	1.8	26
3	5.3	5.8	4.1	2.3	9.5	5.5	2.5	3.3	3.3	.96	2.0	34
4	3.0	4.6	4.1	2.2	7.5	5.3	3.6	3.3	3.2	1.1	1.8	24
5	2.8	3.6	4.8	2.2	7.5	5.0	3.5	3.0	3.0	1.4	1.4	20
6	2.8	3.5	4.1	2.2	7.0	5.0	3.5	3.0	2.8	2.2	.82	17
7	3.2	3.6	3.8	2.2	7.0	4.8	3.3	12	2.8	174	.75	15
8	3.6	4.1	4.1	2.2	6.6	4.6	3.5	7.0	2.8	37	.95	187
9	3.6	3.8	4.1	2.2	6.2	4.1	3.6	2.9	3.2	132	1.0	99
10	4.6	3.6	4.6	2.4	6.0	4.3	3.2	2.6	27	38	1.0	37
11	3.8	3.5	5.0	2.5	5.0	4.3	3.0	5.3	11	12	189	22
12	3.2	3.8	4.8	2.8	5.0	4.3	3.0	4.6	3.8	6.1	1,520	15
13	3.2	3.6	4.8	3.2	4.8	4.1	2.9	2.8	3.3	2.9	269	13
14	3.2	3.5	4.5	3.5	4.7	3.6	4.6	2.5	2.6	1.9	105	11
15	3.0	3.5	5.3	4.0	4.6	3.6	4.3	2.6	2.3	1.2	67	10
16	2.6	3.3	5.0	4.0	4.5	3.3	3.2	2.2	2.8	1.1	45	8.8
17	2.6	3.3	5.3	4.5	4.5	5.0	3.2	2.1	3.0	.99	31	8.1
18	2.6	3.2	5.5	4.8	4.5	4.3	3.5	2.1	5.3	.84	24	6.7
19	2.8	3.8	4.3	5.0	4.8	5.8	2.9	2.0	4.6	.97	22	5.7
20	2.6	4.1	4.1	5.0	5.0	4.8	4.6	2.0	3.5	2.8	22	5.3
21	3.2	3.5	4.1	5.2	4.8	4.1	4.6	2.0	2.5	1.4	20	6.3
22	3.0	3.3	3.5	5.4	4.5	4.1	7.5	2.9	2.0	4.2	21	6.3
23	3.2	3.3	3.3	5.6	4.7	3.8	5.3	4.6	1.7	1.7	19	492
24	2.8	3.3	3.3	5.8	5.5	3.5	4.3	3.8	1.4	1.2	16	78
25	3.5	3.2	3.5	5.8	6.0	3.0	4.8	4.3	1.3	4.2	13	17
26	3.2	3.5	3.5	7.0	5.3	2.6	3.8	4.1	1.3	5.0	10	11
27	2.8	3.6	3.3	9.0	5.5	2.6	4.1	3.8	1.2	1.8	9.6	9.7
28	3.3	3.6	3.0	10	5.5	3.2	5.0	4.1	1.0	1.6	11	6.8
29	3.3	3.8	3.0	8.5	6.5	2.6	4.3	4.3	.84	1.8	21	5.5
30	3.6	3.6	3.0	9.0	------	2.3	3.8	4.1	.78	1.4	17	4.5
31	3.3	------	3.0	10	------	2.0	------	6.5	------	3.3	15	------
TOTAL	99.2	110.6	126.9	143.8	173.5	126.3	113.3	116.9	113.82	446.80	2,481.42	1,213.7
MEAN	3.20	3.69	4.09	4.64	5.98	4.07	3.78	3.77	3.79	14.4	80.0	40.5
MAX	5.3	5.8	5.5	10	11	5.8	7.5	12	27	174	1,520	492
MIN	2.6	3.2	3.0	2.2	4.5	2.0	1.8	2.0	.78	.84	.75	4.5
AC-FT	197	219	252	285	344	251	225	232	226	886	4,920	2,410

CAL YR 1967: TOTAL 7,367.2 MEAN 20.2 MAX 872 MIN 1.7 AC-FT 14,610
WTR YR 1968: TOTAL 5,266.24 MEAN 14.4 MAX 1,520 MIN .75 AC-FT 10,450

PEAK DISCHARGE (BASE, 700 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8-12	0700	16.90	2,060	9-23	1300	12.57	920

6-8639. North Fork Big Creek near Victoria, Kans.

Location.--Lat 38°53'12", long 99°12'21", on west line in SW¼ sec. 27, T. 13 S., R. 17 W., at downstream side of highway bridge, 3½ miles northwest of Victoria, Ellis County, and about 18 miles upstream from mouth.

Drainage area.--54 sq mi (approximately).

Records available.--April 1962 to September 1968.

Gage.--Digital water-stage recorder. Altitude of gage is 1,940 ft (from topographic map). Prior to Oct. 1, 1964 graphic water-stage recorder at same site and datum.

Average discharge.--6 years, 4.18 cfs (3,030 acre-ft per year).

Extremes.--Maximum discharge during year, 1,870 cfs Sept. 23 (gage height, 13.26 ft); no flow most days.
1962-68: Maximum discharge, 5,280 cfs July 6, 1965 (gage height, 18.32 ft); no flow at times in most years.

Remarks.--Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.09	0	0	0	.01	0	0	0	0	0	0
2	0	.17	0	0	0	0	0	0	0	0	0	0
3	0	.13	0	0	0	0	0	0	0	0	0	0
4	0	.08	0	0	.19	0	0	0	0	0	0	0
5	0	.08	0	0	.08	0	0	0	0	0	0	0
6	0	.08	0	0	0	0	0	0	0	0	0	0
7	0	.10	0	0	0	0	0	0	0	0	0	0
8	0	.12	0	0	0	0	0	0	0	0	0	0
9	0	.12	0	0	0	0	0	0	.03	0	0	0
10	0	.13	0	0	0	0	0	0	.01	0	0	0
11	0	.12	0	0	.01	0	0	0	0	0	0	0
12	0	.09	0	0	0	0	0	0	0	0	0	0
13	0	.08	0	0	0	0	0	0	0	0	0	0
14	0	.10	0	0	0	0	0	0	0	0	0	0
15	0	.12	0	0	0	0	0	0	0	0	0	0
16	0	.15	0	0	0	0	0	0	0	0	0	0
17	0	.14	0	0	0	0	0	0	0	0	0	0
18	0	.13	0	0	0	0	0	0	0	0	0	0
19	0	.15	0	0	0	0	0	0	0	0	0	0
20	0	.17	0	0	0	0	0	0	0	0	0	0
21	0	.16	0	0	0	0	0	0	0	0	0	0
22	.02	.16	0	0	0	0	0	0	0	0	0	0
23	.02	.18	0	0	0	0	0	0	0	0	0	834
24	0	.17	0	0	0	0	0	0	0	0	0	64
25	0	.16	0	0	0	0	0	0	0	0	0	7.3
26	.02	.16	0	0	.08	0	0	0	0	0	0	2.1
27	.02	.14	0	0	.06	0	0	0	0	0	0	.80
28	.06	.07	0	0	0	0	0	0	0	0	0	.49
29	.08	0	0	0	.02	0	0	0	0	0	0	.31
30	.06	0	0	0	------	0	0	0	0	0	0	.19
31	.06	------	0	0	------	0	------	0	------	0	0	------
TOTAL	0.34	3.55	0	0	0.44	0.01	0	0	0.04	0	0	909.19
MEAN	.011	.12	0	0	.015	.0003	0	0	.001	0	0	30.3
MAX	.08	.18	0	0	.19	.01	0	0	.03	0	0	834
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	.7	7.0	0	0	.9	.02	0	0	.08	0	0	1,800

CAL YR 1967 TOTAL 2,100.41 MEAN 5.75 MAX 610 MIN 0 AC-FT 4,170
WTR YR 1968 TOTAL 913.57 MEAN 2.50 MAX 834 MIN 0 AC-FT 1,810

PEAK DISCHARGE (BASE, 100 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
9-23	0730	13.26	1,870				

6-8640. Smoky Hill River near Russell, Kans.

Location.--Lat 38°46'36", long 98°51'16", in NW¼ sec. 2, T. 15 S., R. 14 W., on downstream side of right pier of bridge on U.S. Highway 281, a quarter of a mile upstream from Landon Creek, 7.7 miles south of Russell, Russell County, and at mile 287.0.

Drainage area.--6,965 sq mi.

Records available.--October 1939 to September 1968.

Gage.-- Digital water-stage recorder. Datum of gage is 1,689.05 ft above mean sea level, datum of 1929. Prior to Sept. 11, 1940, wire-weight gage and Sept. 11, 1940 to Nov. 4, 1966 graphic water-stage recorder at present site and datum.

Average discharge.--29 years, 219 cfs (158,500 acre-ft per year).

Extremes.--Maximum discharge during year, 5,970 cfs Sept. 23 (gage height, 12.30 ft); minimum, 3.4 cfs July 4, 5, 7.
1939-68: Maximum discharge, 39,500 cfs May 23, 1951 (gage height, 23.86 ft); no flow at times in 1940, 1943, 1955-57.
Flood of May 30, 1938, reached a stage of about 29.0 ft, from floodmarks (discharge, about 70,000 cfs, from rating curve extended above 37,500 cfs by logarithmic plotting).

Remarks.--Records good except those for winter periods, which are poor. Flow regulated by Cedar Bluff Reservoir (see Sta. no. 6-8615). Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	27	29	18	35	29	16	22	15	4.8	32	35
2	35	29	30	15	33	28	16	21	14	4.8	29	29
3	32	31	28	15	33	27	20	20	13	4.6	29	23
4	30	30	28	15	32	27	19	19	12	4.4	32	20
5	28	29	28	15	33	27	16	19	11	4.4	25	31
6	30	29	28	15	32	26	16	20	10	5.2	21	27
7	30	32	27	15	29	26	16	24	9.2	4.4	17	22
8	29	30	27	16	29	26	18	22	8.8	38	16	19
9	29	29	29	16	28	25	18	26	9.2	53	15	57
10	28	28	30	17	28	24	17	31	20	67	15	126
11	27	29	29	17	28	22	17	34	21	65	14	58
12	28	29	28	18	28	21	16	30	31	36	48	36
13	28	29	28	18	23	23	18	30	34	22	1,120	27
14	27	28	25	19	24	22	21	30	22	16	268	20
15	26	28	27	19	30	22	21	28	18	13	116	17
16	25	33	27	20	28	21	21	23	16	10	71	21
17	25	29	31	20	27	20	21	21	15	8.8	52	19
18	25	27	28	20	27	19	22	19	14	7.6	46	18
19	25	27	27	22	28	19	27	17	15	6.4	39	16
20	25	27	27	22	31	19	32	17	13	5.8	36	15
21	25	27	24	25	23	20	28	17	11	15	33	14
22	25	28	21	25	23	21	30	20	9.2	19	27	33
23	25	29	26	30	35	20	26	21	8.0	12	22	2,460
24	24	29	25	40	34	21	26	21	7.2	9.2	19	2,810
25	25	28	23	63	36	21	26	21	6.8	23	18	463
26	25	28	20	53	35	20	23	21	5.8	24	16	215
27	27	28	20	49	32	21	22	20	5.6	72	15	132
28	25	28	20	43	31	18	22	19	5.4	69	16	98
29	26	29	20	41	26	18	21	17	5.2	60	19	70
30	26	29	20	36	------	17	22	16	5.0	59	26	58
31	26	------	19	36	------	15	------	18	------	42	33	------
TOTAL	850	863	799	793	861	685	634	684	390.4	785.4	2,285	6,989
MEAN	27.4	28.8	25.8	25.6	29.7	22.1	21.1	22.1	13.0	25.3	73.7	233
MAX	38	33	31	63	36	29	32	34	34	72	1,120	2,810
MIN	24	27	19	15	23	15	16	16	5.0	4.4	14	14
AC-FT	1,690	1,710	1,580	1,570	1,710	1,360	1,260	1,360	774	1,560	4,530	13,860

CAL YR 1967 TOTAL 90,850.8 MEAN 249 MAX 10,100 MIN 9.8 AC-FT 180,200
WTR YR 1968 TOTAL 16,618.8 MEAN 45.4 MAX 2,810 MIN 4.4 AC-FT 32,960

6-8645. Smoky Hill River at Ellsworth, Kans.

Location.--Lat 38°43'36", long 98°14'00", in SE¼ sec. 20, T. 15 S., R. 8 W., at downstream side of bridge on State Highway 14 in Ellsworth, Ellsworth County, 2 miles downstream from Turkey Creek, and at mile 238.0.

Drainage area.--7,580 sq mi, approximately.

Records available.--April 1895 to October 1905, July 1918 to July 1925, August 1928 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,509.02 ft above mean sea level, datum of 1929. Prior to Oct. 31, 1905, staff gage at present site at datum 1.61 ft higher. July 23, 1918 to July 4, 1925 and Aug. 1, 1928 to Nov. 29, 1939, chain or wire-weight gages at present site and datum. Nov. 30, 1939 to Sept. 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--56 years (1895-1905, 1918-24, 1928-68), 254 cfs (183,900 acre-ft per year).

Extremes.--Maximum discharge during year, 6,650 cfs Sept. 23 (gage height, 13.44 ft); minimum, 10 cfs July 4, 5.
1895-1905, 1918-25, 1928-68: Maximum discharge, 61,000 cfs June 1, 1938 (gage height, 27.2 ft, from floodmarks); no flow for part of day Sept. 28, 1956.
Flood in August 1927 reached a stage of 25.7 ft, from floodmarks (discharge, 44,800 cfs).

Remarks.--Records good except those for winter months, which are poor. Flow regulated by Cedar Bluff Reservoir (see station 6-8615). Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	56	51	33	66	41	32	35	39	15	59	27
2	122	59	51	30	63	39	31	37	35	15	64	27
3	109	62	51	28	61	37	36	32	32	14	59	28
4	99	62	51	28	59	37	36	31	31	14	47	28
5	93	62	51	28	57	36	35	31	30	14	37	26
6	92	61	51	28	52	36	34	31	29	158	36	24
7	104	61	50	28	51	36	33	64	28	73	33	24
8	88	61	50	28	51	36	32	110	34	36	29	25
9	82	61	50	28	47	35	31	64	124	25	25	23
10	78	60	50	28	46	35	31	47	327	22	25	22
11	77	59	51	28	45	33	31	50	228	39	24	37
12	75	59	51	29	44	33	31	52	76	58	23	79
13	72	57	51	29	39	33	33	58	46	62	21	53
14	71	57	47	30	34	33	47	58	50	43	541	39
15	69	57	41	31	36	33	35	49	82	36	379	30
16	68	57	46	35	48	33	31	49	236	36	200	31
17	67	57	56	45	46	32	30	47	107	36	131	29
18	66	57	63	55	39	31	29	44	62	28	94	28
19	64	56	59	90	40	31	64	40	42	20	86	29
20	63	56	58	100	41	30	112	37	37	20	65	29
21	62	56	54	100	42	29	55	37	29	19	53	37
22	59	56	52	96	41	29	101	47	25	18	46	46
23	59	55	49	90	40	29	88	50	23	17	39	4,910
24	58	55	52	85	40	29	58	49	22	21	37	2,970
25	56	55	51	82	50	30	47	47	20	161	36	1,930
26	56	55	48	96	44	31	44	47	19	80	24	535
27	56	53	44	81	43	32	43	43	19	35	26	303
28	56	52	40	74	42	33	43	37	18	39	56	208
29	56	52	37	73	35	34	42	35	17	59	40	154
30	56	51	35	67	------	34	39	33	15	61	35	104
31	56	------	34	69	------	32	------	36	------	58	30	------
TOTAL	2,330	1,717	1,525	1,672	1,342	1,032	1,334	1,427	1,882	1,332	2,400	11,835
MEAN	75.2	57.2	49.2	53.9	46.3	33.3	44.5	46.0	62.7	43.0	77.4	395
MAX	141	62	63	100	66	41	112	110	327	161	541	4,910
MIN	56	51	34	28	34	29	29	31	15	14	21	22
AC-FT	4,620	3,410	3,020	3,320	2,660	2,050	2,650	2,830	3,730	2,640	4,760	23,470

CAL YR 1967 TOTAL 137,239 MEAN 376 MAX 8,270 MIN 10 AC-FT 272,200
WTR YR 1968 TOTAL 29,828 MEAN 81.5 MAX 4,910 MIN 14 AC-FT 59,160

6-8650. Kanopolis Reservoir near Kanopolis, Kans.

Location.--Lat 38°37', long 97°58', in NE¼ sec. 3, T. 17 S., R. 6 W., in control tower at dam on Smoky Hill River, 12 miles southeast of Kanopolis, Ellsworth County, 25 miles southwest of Salina, and 207.8 miles upstream from mouth of Smoky Hill River.

Drainage area.--7,857 sq mi.

Records available.--February 1948 to September 1968. Prior to October 1956, monthly records only.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers).

Extremes.--Maximum elevation during year, 1,469.00 ft Oct. 1 (contents 87,390 acre-ft); minimum 1,459.83 ft Sept. 20, 21 (contents, 50,130 acre-ft).
1948-68: Maximum elevation, 1,506.98 ft July 14, 1951 (contents, 435,100 acre-ft); minimum elevation since conservation pool was first filled, 1,454.44 ft Feb. 5, 1950; minimum contents, 36,680 acre-ft Feb. 4, 5, 1961.

Remarks.--Reservoir is formed by earth-fill dam; storage began Feb. 17, 1948, and dam was completed in same year. Capacity 432,900 acre-ft between elevations 1,415 (sill of outlet gate) and 1,508 ft. Crest of uncontrolled spillway is at elevation 1,507 ft. Storage capacity of 357,700 acre-ft above elevation 1,463 ft is provided for flood control. Storage capacity of 61,380 acre-ft below elevation 1,463 ft is provided for conservation and recreation. Inflow partly regulated by Cedar Bluff Reservoir (see sta. no. 6-8615). Figures given herein represent elevations above mean sea level.

Capacity table (elevation, in feet, and contents, in acre-feet)

1,458	44,180	1,466	73,820
1,460	50,710	1,468	82,840
1,462	57,720	1,470	92,200
1,464	65,240		

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69.00	63.22	61.35	61.31	61.33	61.23	60.88	60.92	60.78	60.80	60.24	60.27
2	68.68	63.21	61.36	61.30	61.30	61.22	60.98	60.91	60.77	60.74	60.26	60.22
3	68.36	63.18	61.32	61.28	61.34	61.22	60.95	60.83	60.75	60.70	60.24	60.22
4	68.02	63.13	61.35	61.27	61.33	61.22	60.93	60.87	60.73	60.67	60.20	60.19
5	67.72	63.10	61.36	61.26	61.33	61.22	60.89	60.81	60.70	60.64	60.16	60.17
6	67.48	63.07	61.36	61.24	61.32	61.21	60.83	60.80	60.67	60.62	60.13	60.13
7	67.22	63.03	61.35	61.21	61.32	61.14	60.90	60.85	60.67	60.66	60.09	60.09
8	66.93	62.84	61.35	61.20	61.32	61.22	60.87	60.85	60.70	60.61	60.07	60.06
9	66.63	62.48	61.34	61.18	61.32	61.21	60.85	60.85	60.82	60.60	60.04	60.04
10	66.31	62.14	61.35	61.17	61.30	61.18	60.83	60.85	60.92	60.58	60.01	60.01
11	65.94	61.78	61.37	61.16	61.30	61.13	60.79	60.86	61.12	60.55	59.97	59.98
12	65.55	61.45	61.35	61.14	61.29	61.13	60.80	60.85	61.16	60.53	59.94	59.94
13	65.13	61.29	61.34	61.12	61.28	61.06	60.80	60.90	61.14	60.52	59.93	59.93
14	64.72	61.29	61.32	61.12	61.27	61.13	60.87	60.90	61.12	60.49	59.90	59.91
15	64.33	61.29	61.31	61.11	61.26	61.13	60.83	60.91	61.18	60.47	60.15	59.88
16	64.15	61.31	61.32	61.10	61.25	61.10	60.88	60.89	61.23	60.43	60.31	59.94
17	64.10	61.30	61.36	61.10	61.23	61.04	60.83	60.87	61.28	60.45	60.32	59.92
18	64.03	61.29	61.38	61.09	61.23	61.12	60.85	60.85	61.28	60.43	60.36	59.89
19	63.97	61.29	61.38	61.09	61.25	61.07	60.93	60.83	61.28	60.40	60.36	59.87
20	63.90	61.31	61.38	61.09	61.23	61.02	60.93	60.80	61.24	60.37	60.34	59.83
21	63.83	61.31	61.40	61.11	61.21	61.05	60.90	60.82	61.23	60.33	60.32	59.83
22	63.76	61.30	61.38	61.12	61.21	61.02	60.92	60.85	61.18	60.31	60.30	59.89
23	63.73	61.32	61.37	61.13	61.20	60.99	60.94	60.86	61.13	60.29	60.30	61.08
24	63.66	61.33	61.33	61.16	61.20	60.97	60.94	60.85	61.11	60.25	60.27	62.92
25	63.59	61.32	61.37	61.18	61.21	60.99	60.94	60.85	61.01	60.35	60.23	63.94
26	63.53	61.32	61.36	61.22	61.23	60.98	60.93	60.85	61.00	60.42	60.19	63.77
27	63.46	61.32	61.36	61.25	61.24	60.97	60.95	60.85	60.95	60.39	60.20	63.17
28	63.38	61.29	61.36	61.28	61.20	60.96	60.94	60.84	60.87	60.39	60.19	62.49
29	63.37	61.33	61.35	61.30	61.22	60.95	60.95	60.82	60.79	60.34	60.29	61.81
30	63.30	61.31	61.35	61.29	------	61.01	60.95	60.79	60.83	60.29	60.32	61.09
31	63.29	------	61.31	61.33	------	60.93	------	60.81	------	60.27	60.30	------
MAX	69.00	63.22	61.40	61.33	61.34	61.23	60.98	60.92	61.28	60.80	60.36	63.94
MIN	63.29	61.29	61.31	61.09	61.20	60.93	60.79	60.79	60.67	60.25	59.90	59.83
(+)	62,476	55,247	55,247	55,318	54,928	53,908	53,978	53,490	53,559	51,632	51,734	54,469
(‡)	-26,464	-7,229	0	+71	-390	-1,020	+70	-488	+69	-1,927	+102	+2,735

CAL YR 1967 ..... (‡) +7,557
WTR YR 1968 ..... (‡) -34,471

+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
‡ CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 1,400 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.

6-8655. Smoky Hill River near Langley, Kans.

Location.--Lat 38°37', long 97°57', in SE¼ sec. 35, T. 16 S., R. 6 W., at downstream side of county highway bridge, half a mile downstream from Kanopolis Dam, Ellsworth County, 5 miles north of Langley, and at mile 207.2.

Drainage area.--7,857 sq mi.

Records available.--October 1940 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,400.66 ft above mean sea level, (Corps of Engineers bench mark). Prior to Apr. 1, 1952, graphic water-stage recorder at datum 2.00 ft higher. Apr. 1, 1952 to Oct. 13, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--28 years, 338 cfs (244,700 acre-ft per year).

Extremes.--Maximum discharge during year, 1,660 cfs Sept. 26 (gage height, 6.03 ft); minimum, 34 cfs July 21-24.
1940-68: Maximum discharge observed, 21,800 cfs Oct. 20, 1941 (gage height, 27.2 ft, present datum); minimum daily, 0.4 cfs Jan. 23, 1948.
Flood in June 1938 reached a stage of 28.9 ft (present datum), from information by Corps of Engineers (discharge, about 45,000 cfs by extension of subsequent rating curve above 16,000 cfs and correlation of peak flow at adjacent stations).

Remarks.--Records good. Flow regulated by Cedar Bluff Reservoir (see station 6-8615) and Kanopolis Reservoir (see station 6-8650). Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	946	144	55	57	54	54	49	47	46	46	78	50
2	916	144	56	57	54	54	49	46	46	45	78	49
3	887	143	57	57	55	54	53	46	46	44	79	48
4	860	139	57	57	58	54	53	45	46	43	78	48
5	830	137	57	55	58	54	49	45	45	42	77	49
6	806	135	57	54	58	54	48	43	43	41	76	49
7	795	135	57	54	58	54	48	44	43	41	62	50
8	765	399	57	52	58	54	48	44	43	141	48	50
9	740	690	57	52	58	54	48	43	47	43	47	49
10	714	669	57	51	58	54	48	43	49	42	43	48
11	799	650	57	51	57	54	48	45	52	42	42	48
12	971	633	57	51	57	54	47	45	56	41	41	46
13	938	271	57	50	57	50	48	45	56	40	41	46
14	903	54	56	49	56	50	51	45	57	40	41	46
15	879	54	55	46	56	52	51	46	58	39	42	45
16	420	54	55	46	56	52	51	46	58	38	46	45
17	191	54	55	48	56	50	51	46	59	37	49	45
18	186	54	55	48	56	50	51	46	61	37	51	45
19	181	54	55	47	55	52	51	45	61	37	51	44
20	178	54	56	47	55	52	53	45	61	37	51	41
21	175	54	58	48	55	50	52	44	60	35	51	40
22	171	54	58	48	55	50	51	45	58	34	51	40
23	168	54	58	48	55	49	53	47	57	34	51	285
24	166	54	58	48	54	49	51	48	56	54	51	708
25	162	55	59	49	54	49	51	48	55	80	49	784
26	160	55	57	51	54	49	50	48	54	80	49	1,200
27	156	55	57	51	54	49	49	48	52	80	48	1,600
28	152	55	57	52	55	49	49	48	51	80	48	1,560
29	150	55	57	54	54	49	49	46	49	80	49	1,510
30	148	55	58	54	------	50	48	46	47	80	50	1,460
31	145	------	58	54	------	52	------	46	------	79	52	------
TOTAL	15,658	5,213	1,760	1,586	1,620	1,601	1,498	1,414	1,572	1,632	1,670	10,128
MEAN	505	174	56.8	51.2	55.9	51.6	49.9	45.6	52.4	52.6	53.9	338
MAX	971	690	59	57	58	54	53	48	61	141	79	1,600
MIN	145	54	55	46	54	49	47	43	43	34	41	40
AC-FT	31,060	10,340	3,490	3,150	3,210	3,180	2,970	2,800	3,120	3,240	3,310	20,090

CAL YR 1967: TOTAL 146,561.0 MEAN 402 MAX 3,340 MIN 7.2 AC-FT 290,700
WTR YR 1968: TOTAL 45,352 MEAN 124 MAX 1,600 MIN 34 AC-FT 89,950

6-8665. Smoky Hill River near Mentor, Kans.

Location.--Lat 38°47'54", long 97°34'28", on south line sec. 29, T. 14 S., R. 2 W., at downstream side of highway bridge, 3.6 miles southeast of Salina City Hall, 4 miles north of Mentor, Saline County, and at mile 131.5.

Drainage area.--8,230 sq mi.

Records available.--December 1923 to October 1930, May 1931 to June 1932, October 1947 to September 1968. Published as "near Salina" 1948-49.

Gage.--Digital water-stage recorder. Datum of gage is 1,211.40 ft above mean sea level (levels by Corps of Engineers). Prior to June 30, 1932, chain gage at site 10 miles upstream at datum 20.9 ft higher. Oct. 1, 1947 to Sept. 18, 1948, wire-weight gage, and Sept. 19, 1948 to June 26, 1959, graphic water-stage recorder at site 0.3 mile west on former channel, at present datum. June 27 to Sept. 8, 1959, wire-weight gage and Sept. 9, 1959 to Mar. 24, 1965, graphic water-stage recorder at present site and datum.

Average discharge.--27 years (1924-30, 1947-68), 404 cfs (292,500 acre-ft per year).

Extremes.--Maximum discharge during year, 2,080 cfs Oct. 8 (gage height, 12.01 ft); minimum, 2.4 cfs July 24.
1923-32, 1947-68: Maximum discharge, 25,500 cfs Aug. 17, 1927 (gage height, 26.2 ft, from floodmark, site and datum then in use), from rating curve extended above 5,700 cfs on basis of flood-routing study and slope-area measurement at gage height 25.8 ft; minimum, 1.8 cfs July 10, 1963.
Greatest flood known at Salina, 7½ miles downstream, occurred in 1844; second greatest flood known, May 29, 1903, reached a stage of 26.5 ft near Mentor, from floodmarks, site and datum of 1923-32.

Remarks.--Records good except those for winter months, which are poor. Flow regulated by Cedar Bluff Reservoir (see station 6-8615) and Kanopolis Reservoir (see station 6-8650). Diversions above station for irrigation. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,010	210	122	98	104	83	61	66	68	47	62	59
2	968	216	135	96	100	87	63	65	66	40	65	51
3	937	220	126	94	98	87	97	66	64	32	78	50
4	916	220	126	92	98	83	344	66	63	27	135	53
5	902	216	122	90	98	81	233	65	63	28	110	54
6	881	208	124	90	100	81	126	65	64	26	72	60
7	1,440	202	122	88	97	79	102	74	64	24	62	52
8	1,700	198	118	88	95	79	91	78	63	27	56	52
9	1,000	194	121	90	95	78	84	72	68	25	47	50
10	850	470	121	90	97	78	80	66	74	18	44	49
11	800	675	118	92	95	78	76	66	84	45	42	48
12	776	664	119	94	97	76	74	65	81	26	39	46
13	930	650	118	96	90	74	73	67	72	15	38	46
14	965	626	118	98	90	75	78	74	67	13	32	44
15	1,100	308	114	94	95	73	74	74	74	11	32	42
16	1,170	186	113	92	100	72	73	70	223	13	36	45
17	884	162	118	92	95	67	74	65	258	12	34	51
18	434	154	122	96	91	66	74	64	129	13	36	50
19	320	146	137	98	91	69	74	62	84	8.2	40	50
20	290	140	137	105	93	70	127	60	74	8.7	40	48
21	278	137	132	110	95	69	121	60	72	5.6	38	45
22	260	135	122	115	83	70	108	152	70	4.7	38	44
23	245	134	110	132	87	69	98	146	66	3.8	36	47
24	250	130	113	130	95	67	78	138	62	3.4	36	46
25	245	129	130	119	93	68	75	118	64	7.6	32	46
26	235	127	121	118	91	65	72	97	63	18	34	380
27	225	124	118	111	91	65	72	90	59	79	39	587
28	214	122	114	107	90	63	72	80	52	79	44	1,090
29	214	124	116	107	86	62	69	75	48	80	51	1,260
30	212	124	110	104	------	62	68	73	45	61	61	1,240
31	208	------	100	102	------	64	------	69	------	63	68	------
TOTAL	20,859	7,351	3,737	3,128	2,730	2,260	2,911	2,448	2,404	864.0	1,577	5,785
MEAN	673	245	121	101	94.1	72.9	97.0	79.0	80.1	27.9	50.9	193
MAX	1,700	675	137	132	104	87	344	152	258	80	135	1,260
MIN	208	122	100	88	83	62	61	60	45	3.4	32	42
AC-FT	41,370	14,580	7,410	6,200	5,410	4,480	5,770	4,860	4,770	1,710	3,130	11,470

CAL YR 1967 TOTAL 185,074 MEAN 507 MAX 5,410 MIN 23 AC-FT 367,100
WTR YR 1968 TOTAL 56,054.0 MEAN 153 MAX 1,700 MIN 3.4 AC-FT 111,200

6-8670. Saline River near Russell, Kans.

Location.--Lat 38°58'00", long 98°51'20", on east line sec. 34, T. 12 S., R. 14 W., at downstream side of bridge on U.S. Highway 281, 2 miles downstream from Salt Creek, and 5 miles north of Russell, Russell County.

Drainage area.--1,502 sq mi.

Records available.--October 1945 to September 1953, June 1959 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,551.59 ft above mean sea level, datum of 1929. Prior to Jan. 22, 1946, wire-weight gage and Jan. 22, 1946, to Sept. 30, 1964 graphic water-stage recorder at same site and datum.

Average discharge.--17 years, 135 cfs (97,740 acre-ft per year).

Extremes.--Maximum discharge during year, 3,840 cfs Sept. 23 (gage height, 14.29 ft); minimum, 1.1 cfs Aug. 7-8.
1945-53, 1959-68: Maximum discharge, 19,400 cfs Sept. 1, 1964 (gage height, 19.70 ft); no flow Aug. 11, 12, 1964.

Remarks.--Records good except those for winter months, which are poor. Records of chemical analyses, water temperatures, and continuous conductivity for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	17	24	9.0	32	28	15	19	33	5.3	2.8	135
2	30	21	24	9.0	30	25	17	17	31	4.8	4.0	98
3	28	23	24	10	29	25	23	16	29	4.2	3.7	73
4	26	23	25	10	28	24	20	16	27	4.0	3.2	59
5	26	24	25	13	27	22	19	15	25	4.5	2.4	49
6	25	23	24	11	26	22	17	17	23	5.8	1.8	42
7	25	23	23	11	25	21	16	20	23	4.2	1.4	38
8	25	21	23	12	24	20	16	17	21	5.6	1.8	34
9	23	21	25	13	25	19	15	452	218	5.1	2.9	33
10	22	21	26	13	24	19	15	225	89	6.7	3.8	47
11	20	21	24	13	25	19	15	150	69	7.0	2.8	36
12	18	21	25	12	24	19	15	109	42	10	158	28
1	17	21	25	11	24	19	16	88	62	5.0	282	24
14	16	21	49	12	24	18	16	74	67	3.5	189	20
15	16	21	46	13	25	16	15	332	53	3.1	125	19
16	16	21	51	15	25	16	15	202	45	2.8	86	35
17	16	1	62	17	25	16	15	130	37	5.3	65	24
18	16	20	34	19	22	15	17	97	32	5.7	59	26
19	16	21	31	21	19	16	24	76	29	8.4	56	57
20	16	21	29	23	25	16	25	64	24	8.4	43	42
21	16	21	30	26	25	17	25	57	20	5.5	34	31
22	16	22	53	28	27	17	26	56	18	6.3	26	26
23	15	23	45	29	28	17	28	53	15	3.7	20	2,290
24	15	23	38	29	30	18	27	49	13	3.8	17	371
25	16	22	29	30	36	16	24	48	13	6.3	15	127
26	16	22	23	32	31	17	22	46	11	5.6	13	91
27	16	22	20	33	29	16	23	43	10	3.9	11	74
28	17	22	18	35	27	15	23	41	8.9	3.3	12	63
29	17	23	18	35	28	15	22	39	7.0	2.9	15	55
30	18	24	17	37	------	15	20	36	5.5	2.6	17	48
31	18	------	9.0	35	------	15	------	36	------	2.6	46	------
TOTAL	610	650	919.0	616.0	769	573	586	2,640	1,100.4	155.9	1,319.6	4,095
MEAN	19.7	21.7	29.6	19.9	26.5	18.5	19.5	85.2	36.7	5.03	42.6	137
MAX	33	24	62	37	36	28	28	452	218	10	282	2,290
MIN	15	17	9.0	9.0	19	15	15	15	5.5	2.6	1.4	19
AC-FT	1,210	1,290	1,820	1,220	1,530	1,140	1,160	5,240	2,180	309	2,620	8,120

CAL YR 1967: TOTAL 22,669.58 MEAN 62.1 MAX 1,990 MIN .72 AC-FT 44,960
WTR YR 1968: TOTAL 14,033.9 MEAN 38.3 MAX 2,290 MIN 1.4 AC-FT 27,840

PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
9-23	1900	14.29	3,840				

6-8675. Paradise Creek near Paradise, Kans.

Location.--Lat 39°04'25", long 98°51'15", on west line sec. 26, T. 11 S., R. 14 W., at downstream side of bridge on U.S. Highway 281, 4.5 miles southeast of Paradise, Russell County, and 13.0 miles upstream from mouth.

Drainage area.--212 sq mi.

Records available.--April 1946 to September 1953, October 1962 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,602.85 ft above mean sea level, datum of 1929. Prior to June 25, 1947, wire-weight gage. June 25, 1947 to Sept. 30, 1953, graphic water-stage recorder, Oct. 1, 1962 to Feb. 7, 1963, wire-weight gage and Feb. 8, 1963 to Sept. 30, 1964, graphic water-stage recorder all at same site and datum.

Average discharge.--13 years, 20.5 cfs (14,840 acre-ft per year).

Extremes.--Maximum discharge during year, 1,990 cfs June 9 (gage height, 16.76 ft); no flow at times.
1946-53, 1962-68: Maximum discharge, 14,800 cfs July 11, 1951 (gage height, 23.10 ft), from rating curve extended above 9,300 cfs on basis of slope-area measurement of peak flow; no flow at times.

Remarks.--Records good except those for winter periods, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	0	.02	0	.06	.04	.04	.04	.09	.08	0	0
2	.02	.02	.03	0	.05	.04	.06	.04	.08	.07	0	0
3	.02	.01	.02	0	.06	.04	.06	.04	.04	.08	.01	0
4	.02	0	.03	0	.05	.04	.04	.04	.04	.08	0	0
5	.02	.01	.03	0	.05	.04	.05	.04	.04	.09	0	0
6	.03	.01	.03	0	.05	.04	.05	.05	0	.05	0	0
7	.03	0	.03	0	.05	.04	.04	.05	0	.03	0	0
8	.03	0	.03	0	.06	.04	.05	.04	0	.03	0	0
9	.03	0	.04	0	.06	.03	.06	.04	1,030	.06	0	0
10	.02	0	.04	0	.06	.04	.03	.04	531	.05	0	0
11	.02	0	.04	0	.06	.03	.04	.05	86	.06	5.1	0
12	.02	0	.04	0	.06	.03	.04	.04	16	.14	.21	0
13	.02	0	.04	0	.05	.03	.04	.04	5.6	.09	.02	0
14	.02	.01	.04	0	.05	.03	.04	.04	2.3	.11	0	0
15	.02	.01	.04	.02	.06	.03	.04	4.6	.85	.08	0	0
16	.02	.01	.05	.03	.06	.03	.05	48	.62	.07	0	0
17	.01	.01	.07	.04	.05	.03	.05	5.8	.38	.08	0	0
18	.01	.01	.06	.05	.05	.03	.04	1.8	.26	.05	0	0
19	.02	.01	.06	.05	.06	.03	.05	1.2	.24	1.6	0	0
20	.02	0	.06	.05	.05	.04	.04	.69	.28	5.3	0	0
21	.02	0	.05	.05	.06	.05	.04	.40	.16	.06	0	0
22	.02	0	.04	.05	.06	.04	.04	.30	.14	.03	0	0
23	.02	.01	.05	.05	.06	.06	.03	.20	.10	.01	0	480
24	.02	.02	.06	.05	.07	.06	.04	.18	.10	.02	0	30
25	.02	.02	.06	.05	.06	.04	.04	.18	.09	.01	0	5.8
26	.02	0	.06	.05	.06	.05	.04	.17	.08	0	0	.80
27	.02	.02	.06	.05	.05	.04	.05	.16	.09	0	0	.22
28	.02	.01	.06	.05	.05	.04	.04	.16	.08	0	0	.11
29	.02	.02	.06	.05	.04	.04	.04	.15	.08	0	0	.10
30	.02	.02	.06	.06	------	.04	.04	.14	.05	0	0	.09
31	.02	------	.03	.06	------	.04	------	.09	------	0	0	------
TOTAL	0.63	0.23	1.39	0.81	1.61	1.22	1.11	64.81	1,674.79	8.33	5.34	517.12
MEAN	.020	.008	.045	.026	.056	.039	.044	2.09	55.8	.27	.17	17.2
MAX	.03	.02	.07	.06	.07	.06	.06	48	1,030	5.3	5.1	480
MIN	.01	0	.02	0	.04	.03	.03	.04	0	0	0	0
AC-FT	1.3	.5	2.8	1.6	3.2	2.4	2.6	129	3,320	17	11	1,030

CAL YR 1967 TOTAL 2,145.35 MEAN 5.88 MAX 546 MIN 0 AC-FT 4,260
WTR YR 1968 TOTAL 2,277.59 MEAN 6.22 MAX 1,030 MIN 0 AC-FT 4,520

PEAK DISCHARGE (BASE, 150 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
6-9	2000	16.76	1,990	9-23	1100	13.86	1,200

6-8681. Wilson Reservoir near Wilson, Kans.

Location.--Lat 38°58'00", long 98°29'35", near center sec. 36, T. 12 S., R. 11 W., in the control tower near right end of Wilson Dam on the Saline River, 10 miles north of Wilson, Russell County, and at mile 127.7.

Drainage area.--1,917 sq mi.

Records available.--December 1964 to September 1968.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers).

Extremes.--Maximum elevation during year, 1,503.13 ft June 18 (contents, 147,200 acre-ft); minimum, 1,501.63 ft Oct. 30, 31 (contents, 137,500 acre-ft).
1964-68: Maximum elevation that of June 18, 1968; minimum since conservation pool first filled, 1493.59 ft Dec. 26, 1966 (contents, 91,500 acre-ft).

Remarks.--Reservoir is formed by earth-fill dam, storage began Dec. 29, 1964. Total capacity 1,711,000 acre-ft below elevation 1,587.5 ft, consisting of dead storage 1,960 acre-ft below elevation 1,450 ft, conservation pool 245,880 acre-ft between elevation 1,450 ft and 1,516 ft, flood control pool 1,253,000 acre-ft between 1,516 ft and 1,582 ft and surcharge capacity of 210,200 acre-ft between 1,582 ft and 1,587.5 ft.

Capacity table (elevation, in feet, and contents, in acre-ft)

1,501	133,480
1,502	139,850
1,503	146,380
1,504	153,070

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.92	1.64	1.67	1.75	1.87	1.97	1.94	1.97	2.41	2.78	2.13	1.96
2	1.92	1.68	1.70	1.75	1.86	1.97	2.00	1.95	2.41	2.74	2.15	1.98
3	1.90	1.67	1.68	1.75	1.88	1.99	2.11	1.95	2.40	2.71	2.15	1.94
4	1.88	1.65	1.69	1.77	1.87	1.99	1.97	1.92	2.40	2.69	2.13	1.92
5	1.89	1.66	1.70	1.78	1.87	1.98	1.96	1.88	2.40	2.70	2.08	1.91
6	1.93	1.65	1.74	1.75	1.88	1.98	1.95	1.88	2.39	2.72	2.05	1.91
7	1.91	1.65	1.70	1.74	1.87	2.02	1.95	1.93	2.42	2.68	2.00	1.92
8	1.90	1.65	1.68	1.74	1.88	2.00	1.93	1.89	2.38	2.66	2.01	1.90
9	1.88	1.68	1.74	1.74	1.88	2.01	1.93	1.99	2.55	2.64	1.99	1.87
10	1.87	1.68	1.73	1.74	1.88	2.00	1.92	2.07	3.04	2.60	2.02	1.86
11	1.86	1.67	1.75	1.74	1.88	1.99	1.95	2.13	3.10	2.57	1.98	1.84
12	1.84	1.66	1.74	1.73	1.88	1.99	1.91	2.15	3.08	2.58	1.97	1.79
13	1.84	1.67	1.72	1.73	1.88	2.02	1.97	2.21	3.11	2.57	2.06	1.78
14	1.79	1.67	1.70	1.73	1.87	2.00	1.94	2.22	3.09	2.56	2.11	1.77
15	1.80	1.68	1.70	1.73	1.88	2.00	1.97	2.25	3.10	2.53	2.19	1.72
16	1.80	1.69	1.73	1.73	1.88	2.02	1.91	2.32	3.10	2.51	2.16	1.83
17	1.82	1.68	1.76	1.74	1.87	2.04	1.88	2.36	3.11	2.46	2.15	1.80
18	1.80	1.68	1.75	1.74	1.90	2.01	1.90	2.35	3.13	2.43	2.15	1.80
19	1.79	1.70	1.78	1.74	1.89	2.01	2.06	2.34	3.09	2.42	2.14	1.76
20	1.78	1.69	1.81	1.74	1.89	2.00	1.95	2.37	3.09	2.41	2.08	1.78
21	1.78	1.69	1.78	1.74	1.90	1.98	2.02	2.35	3.07	2.37	2.06	1.78
22	1.75	1.73	1.75	1.76	1.90	1.98	2.09	2.41	3.06	2.34	2.03	1.82
23	1.75	1.72	1.75	1.76	1.90	1.98	1.97	2.41	3.02	2.31	1.99	2.58
24	1.74	1.72	1.76	1.78	1.92	1.98	1.95	2.42	3.00	2.30	1.97	3.04
25	1.68	1.70	1.75	1.78	1.93	1.97	1.95	2.44	2.98	2.32	1.94	3.08
26	1.68	1.69	1.75	1.80	1.94	2.03	1.94	2.44	2.93	2.30	1.90	3.09
27	1.65	1.70	1.78	1.80	1.95	1.99	1.98	2.40	2.90	2.28	1.89	3.09
28	1.66	1.68	1.76	1.83	1.98	1.98	1.97	2.39	2.91	2.27	1.90	3.07
29	1.65	1.69	1.76	1.84	1.97	1.97	1.97	2.39	2.89	2.23	1.98	3.07
30	1.63	1.69	1.77	1.85	------	2.00	1.97	2.39	2.80	2.23	1.98	3.08
31	1.63	------	1.76	1.86	------	1.96	------	2.41	------	2.17	1.95	------
MAX	1.93	1.73	1.81	1.86	1.98	2.04	2.11	2.44	3.13	2.78	2.19	3.09
MIN	1.63	1.64	1.67	1.73	1.86	1.96	1.88	1.88	2.38	2.17	1.89	1.72
(+)	137,480	137,860	138,310	138,950	139,660	139,590	139,660	142,510	145,060	140,950	139,530	146,910
(‡)	-1,720	+380	+450	+640	+710	-70	+70	+2,850	+2,550	-4,110	-1,420	+7,380

CAL YR 1967 ..... (‡) +46,560
WTR YR 1968 ..... (‡) +7,710

\+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
‡ CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 1,500 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.

6-8682. Saline River at Wilson Dam, Kans.

Location.--Lat 38°58'35", long 98°29'20", in SW¼SE¼ sec. 25, T. 12 S., R. 11 W., 0.5 mile downstream from outlet of Wilson Dam, 9.0 miles upstream from Wolf Creek, 10 miles north of Wilson, Russell County, and at mile 128.2.

Drainage area.--1,917 sq mi.

Records available.--March 1963 to September 1968.

Gage.--Digital water-stage recorder. Altitude of gage is 1,437 ft (from topographic map). Prior to May 12, 1965, graphic water-stage recorder at site 1.5 miles downstream at different datum.

Average discharge.--5 years, 16.2 cfs (11,730 acre-ft per year).

Extremes.--Maximum discharge during year, 1,660 cfs July 10 (gage height, 13.22 ft); minimum, 1.0 cfs May 29, 30, June 5, 6.
1963-68: Maximum discharge, 1,840 cfs Sept. 2, 1964 (gage height, 11.61 ft, site and datum then in use); minimum, 0.30 cfs Mar. 2, 1966.

Remarks.--Records good. Flow regulated by Wilson Reservoir (see station 6-8681). Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	3.9	2.0	11	9.5	1.9	1.8	4.5	1.2	15	16	18
2	3.4	4.0	2.4	11	9.3	1.9	1.5	6.3	1.2	15	16	18
3	3.6	4.0	2.0	11	9.3	1.8	1.7	5.5	1.2	15	16	18
4	3.4	3.6	1.9	11	9.3	1.9	1.8	5.3	1.2	15	16	18
5	3.6	3.1	1.9	11	9.3	1.8	1.6	4.1	1.1	15	16	18
6	3.6	3.0	2.0	11	9.6	2.1	1.5	2.6	1.1	15	17	18
7	3.7	2.7	10	11	9.1	2.0	1.7	3.2	1.1	14	16	18
8	3.8	2.7	15	11	7.7	2.4	1.8	9.8	2.4	14	17	18
9	3.3	2.6	15	11	3.6	2.8	3.0	17	7.7	14	134	18
10	3.0	2.4	15	11	4.0	3.3	4.6	17	9.2	170	20	19
11	3.2	2.1	13	11	3.3	3.2	5.1	18	9.5	16	20	30
12	3.1	2.1	14	11	3.1	2.4	2.1	18	16	15	20	128
13	3.8	2.0	15	10	3.4	2.2	1.7	18	16	15	18	14
14	3.7	2.0	15	10	3.6	2.2	3.0	17	16	15	17	14
15	3.3	2.0	15	10	4.2	1.9	3.5	17	16	15	18	13
16	3.3	1.9	15	10	4.1	1.7	2.5	17	16	15	20	14
17	3.3	2.0	14	9.9	3.9	1.5	3.3	18	16	15	20	13
18	3.3	2.1	14	10	2.5	1.5	7.4	18	15	15	20	12
19	3.2	2.5	14	10	2.2	1.8	8.2	18	15	15	20	13
20	3.1	2.4	14	9.9	2.0	2.0	7.4	18	15	15	20	15
21	3.2	2.1	14	9.9	2.5	1.9	7.5	16	12	15	20	18
22	3.2	2.0	14	9.9	2.3	1.9	4.9	10	14	15	20	18
23	3.9	2.0	14	9.8	2.5	1.8	4.2	9.6	14	15	20	20
24	3.8	1.9	14	9.6	2.4	1.8	4.0	8.8	15	15	20	18
25	3.6	2.0	14	9.6	2.1	2.4	3.4	7.7	16	15	20	18
26	3.9	2.0	13	9.6	2.0	3.0	3.4	7.7	16	16	18	18
27	3.8	2.0	13	9.5	2.0	2.5	3.7	228	16	16	19	18
28	3.8	2.0	13	9.2	2.1	2.2	4.0	1.9	16	16	19	18
29	4.0	1.9	13	9.(	1.8	1.7	4.2	1.2	15	16	17	18
30	4.0	1.9	13	9.6	------	1.7	4.5	1.2	15	16	18	18
31	4.0	------	12	9.5	------	2.0	-----	1.3	------	16	18	------
TOTAL	109.4	72.9	357.2	317.6	132.7	65.2	109.0	545.7	326.9	624	686	629
MEAN	3.53	2.43	11.5	10.2	4.58	2.10	3.63	17.6	10.9	20.1	22.1	21.0
MAX	4.0	4.0	15	11	9.6	3.3	8.2	228	16	170	134	128
MIN	3.0	1.9	1.9	9.2	1.8	1.5	1.5	1.2	1.1	14	16	12
AC-FT	217	145	709	630	263	129	216	1,080	648	1,240	1,360	1,250

CAL YR 1967 TOTAL 1,667.8 MEAN 4.57 MAX 24 MIN 1.3 AC-FT 3,310
WTR YR 1968 TOTAL 3,975.6 MEAN 10.9 MAX 228 MIN 1.1 AC-FT 7,890

6-8684. Wolf Creek near Lucas, Kans.

Location.--Lat 39°03'30", long 98°33'10", in NW¼ sec. 33, T. 11 S., R. 11 W., at downstream side of highway bridge, 1.2 miles west of Lucas, Russell County, 4 miles upstream from East Fork, and 15 miles upstream from mouth.

Drainage area.--163 sq mi.

Records available.--June 1959 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,456.21 ft above mean sea level, datum of 1929. Prior to Mar. 23, 1965, graphic water-stage recorder at same site and datum.

Average discharge.--9 years, 20.1 cfs (14,550 acre-ft per year).

Extremes.--Maximum discharge during year, 1,160 cfs Sept. 23 (gage height, 19.43 ft); minimum daily, 0.13 cfs July 9, 10, Aug. 21.
1959-68: Maximum discharge, 4,820 cfs May 22, 1961 (gage height, 28.00 ft); no flow in 1967.
Maximum stage known since at least 1895, about 32 ft July 11, 1951, from floodmarks and information by local residents and Corps of Engineers. Flood of June 17, 1957 reached a stage of about 30 ft. Flood in 1935 was highest known prior to 1951.

Remarks.--Records good except those for winter months, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.88	3.4	2.1	2.5	2.1	1.4	.80	1.1	.50	.16	.32	.22
2	.80	3.4	2.5	2.4	2.0	1.6	.92	1.0	.42	.14	.28	.32
3	.84	3.6	2.8	2.3	1.8	1.7	1.1	.84	.39	.16	.39	.32
4	1.3	3.6	2.9	2.2	2.0	1.7	1.1	.80	.36	.14	.36	.32
5	2.2	3.5	3.4	2.1	1.9	1.5	1.0	.80	.36	.14	.32	.36
6	3.1	3.5	4.5	2.0	1.8	1.5	.92	.72	.46	.24	.28	.36
7	2.4	3.5	5.8	1.9	1.6	1.5	.88	.76	.46	.19	.24	.28
8	2.1	3.5	5.4	1.9	1.6	1.4	.88	.80	.46	.14	.24	.28
9	2.3	3.1	6.0	1.9	1.6	1.4	.88	.76	.42	.13	.39	.32
10	1.7	2.6	6.8	1.9	1.6	1.3	.88	.76	20	.13	.60	.39
11	.92	2.5	5.5	1.9	1.6	1.2	.84	.84	1.7	.16	.42	.50
12	1.1	2.3	5.2	2.0	1.6	1.2	.84	.84	.92	.19	.32	.50
13	1.6	2.3	5.1	2.0	1.6	1.2	.88	.80	.68	.22	.28	.46
14	1.4	2.2	4.7	2.1	1.6	1.1	1.1	.84	.60	.19	.24	.42
15	1.4	2.2	4.5	2.1	1.6	1.1	.96	.84	.56	.18	.25	.42
16	1.1	2.1	4.3	2.2	1.6	.92	.92	.76	.53	.19	.28	1.1
17	1.1	1.8	5.2	2.2	1.6	.84	.92	.68	.46	.19	.22	.92
18	1.1	1.7	5.8	2.5	1.6	.84	.92	.64	.50	.19	.22	.84
19	1.1	1.6	4.7	2.8	1.5	.88	1.4	.56	.50	.28	.22	.80
20	1.0	1.6	4.2	3.1	1.5	.88	1.4	.56	.42	.28	.18	.80
21	1.0	1.5	4.0	3.4	1.5	.88	1.5	.53	.39	.22	.13	.80
22	1.0	1.5	3.8	3.8	1.6	.88	1.8	.60	.32	.22	.14	.76
23	1.0	1.4	3.6	4.2	1.6	.88	1.3	.56	.32	.22	.18	611
24	1.0	1.5	3.8	3.4	1.7	.92	1.1	.56	.28	.25	.16	280
25	1.1	1.5	3.9	2.7	1.8	.92	1.1	.64	.25	.28	.16	5.2
26	1.7	1.5	4.0	2.4	2.0	.92	1.1	.68	.24	.28	.16	2.0
27	2.0	1.5	3.8	2.4	1.8	.88	1.1	.60	.24	.28	.14	1.1
28	2.2	1.8	3.6	2.2	1.7	.88	1.2	.64	.24	.32	.20	1.0
29	2.4	1.8	3.4	2.4	1.8	.88	1.2	.56	.19	.32	.22	.68
30	3.0	2.0	3.2	2.1	------	.88	1.1	.56	.16	.25	.25	.68
31	3.5	------	3.0	2.0	------	.80	------	.46	------	.28	.22	------
TOTAL	49.34	70.0	131.5	75.0	49.3	34.88	32.04	22.09	33.33	6.56	8.01	913.15
MEAN	1.59	2.33	4.24	2.42	1.70	1.13	1.07	.71	1.11	.21	.26	30.4
MAX	3.5	3.6	6.8	4.2	2.1	1.7	1.8	1.1	20	.32	.60	611
MIN	.80	1.4	2.1	1.9	1.5	.80	.80	.46	.16	.13	.13	.22
AC-FT	98	139	261	149	98	69	64	44	66	13	16	1,810

CAL YR 1967 TOTAL 4,706.53 MEAN 12.9 MAX 1,240 MIN 0 AC-FT 9,340
WTR YR 1968 TOTAL 1,425.20 MEAN 3.89 MAX 611 MIN .13 AC-FT 2,830

PEAK DISCHARGE (BASE, 400 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
9-23	2015	19.43	1,160				

6-8687. North Branch Spillman Creek near Ash Grove, Kans.

Location.--Lat 39°09'10", long 98°23'50", on east line of sec. 26, T. 10 S., R. 10 W., at upstream side of bridge on State Highway 181, 2.2 miles west of Ash Grove, Lincoln County, and 2.0 miles upstream from mouth.

Drainage area.--26.1 sq mi.

Records available.--March 1962 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 1,490 ft (from topographic map).

Average discharge.--6 years, 0.83 cfs (601 acre-ft per year).

Extremes.--Maximum discharge during year, 137 cfs Aug. 28 (gage height, 4.00 ft); no flow for most days.
1962-68: Maximum discharge, 1,410 cfs June 28, 1965 (gage height, 12.54 ft); no flow at times during most years.

Remarks.--Records fair.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	1.6	0	0
6	0	0	0	0	0	0	0	0	0	.33	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	7.6
24	0	0	0	0	0	0	0	0	0	0	0	1.6
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	31	0	0
29	0	0	0	0	0	0	0	0	0	1.0	0	0
30	0	0	0	0	------	0	0	0	0	1.8	0	0
31	0	------	0	0	------	0	------	0	------	0	.36	------
TOTAL	0	0	0	0	0	0	0	0	0	1.93	34.16	9.2
MEAN	0	0	0	0	0	0	0	0	0	.062	1.10	.31
MAX	0	0	0	0	0	0	0	0	0	1.6	31	7.6
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	0	0	0	3.8	68	18

CAL YR 1967: TOTAL 863.16 MEAN 2.36 MAX 296 MIN 0 AC-FT 1,710
WTR YR 1968: TOTAL 45.29 MEAN 0.12 MAX 31 MIN 0 AC-FT 90

PEAK DISCHARGE BASE (BASE, 250 CFS).--NO PEAK ABOVE BASE.

6-8695. Saline River at Tescott, Kans.

Location.--Lat 39°00', long 97°53', in SE¼ sec. 16, T. 12 S., R. 5 W., at downstream side of highway bridge, half a mile south of Tescott, Ottawa County, half a mile upstream from Dry Creek, and at mile 54.5.

Drainage area.--2,820 sq mi.

Records available.--September 1919 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,265.34 ft above mean sea level, datum of 1929. Prior to Nov. 23, 1934, chain gage at present site and datum. Nov. 23, 1934 to Jan. 10, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--49 years, 227 cfs (164,300 acre-ft per year).

Extremes.--Maximum discharge during year, 584 cfs Aug. 29 (gage height, 11.49 ft); minimum, 5.3 cfs Aug. 16.
1919-68: Maximum discharge, 61,400 cfs July 13, 1951 (gage height, 30.06 ft), from rating curve extended above 7,000 cfs on basis of slope-area measurement of peak flow; no flow at times in 1935-36.
Flood of July 13, 1951 was greatest known since at least 1903 and exceeded the flood of May-June 1903 by about a foot, from information by local residents.

Remarks.--Records good, except those for winter months, which are poor. Some diurnal fluctuation caused by power plants above station. Diversions above station for irrigation. Flow partially regulated by Wilson Reservoir beginning Dec. 29, 1964 (see station 6-8681). Records of chemical analyses, water temperatures and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	8.8	12	11	27	14	8.2	9.9	36	15	13	22
2	21	9.5	12	12	25	13	8.4	9.0	19	14	13	20
3	16	9.8	11	12	22	12	9.2	9.0	14	14	12	16
4	13	11	11	13	20	11	9.4	9.0	12	14	12	15
5	12	11	11	14	19	12	9.0	8.0	11	14	12	14
6	11	11	12	15	19	11	8.6	7.4	10	16	12	14
7	11	11	12	17	18	11	8.6	8.1	10	17	12	13
8	11	11	12	19	17	11	9.0	8.2	9.5	18	11	13
9	11	12	13	19	17	12	9.0	8.1	10	26	10	13
10	10	12	14	20	17	11	8.8	9.1	11	42	11	12
11	10	11	13	21	17	11	8.6	9.2	14	20	11	12
12	10	10	13	22	16	11	8.6	9.2	89	16	12	12
13	9.9	10	13	22	15	11	8.4	8.9	123	22	55	13
14	9.7	10	17	21	14	11	8.4	11	70	63	25	12
15	9.5	10	16	20	14	10	8.2	18	33	24	14	17
16	9.4	11	16	20	13	10	8.2	19	23	13	8.8	57
17	9.5	11	17	20	12	10	8.2	18	22	13	13	26
18	9.6	11	16	22	11	10	8.2	17	21	13	11	16
19	8.8	11	18	22	12	10	8.2	16	21	12	10	16
20	8.6	11	21	22	13	9.9	8.2	15	26	12	9.5	16
21	8.8	11	20	22	12	9.9	8.6	15	245	12	9.8	13
22	8.5	11	17	22	12	9.6	9.5	18	85	12	9.8	11
23	8.7	10	15	23	15	9.1	11	21	32	12	8.5	12
24	8.6	10	15	22	16	9.1	14	40	22	12	8.0	411
25	7.8	10	16	22	15	9.0	23	59	20	12	8.5	272
26	7.8	11	13	22	13	9.0	23	32	17	13	10	376
27	7.9	11	14	23	12	8.5	18	22	17	13	11	392
28	7.9	11	13	22	12	8.5	14	19	17	14	102	106
29	8.2	11	13	23	13	8.4	13	19	16	15	474	36
30	8.4	11	12	24	------	8.2	11	56	16	14	112	25
31	8.4	------	11	27	------	8.2	------	97	------	13	30	------
TOTAL	336.0	320.1	439	616	458	319.4	316.5	625.1	1,071.5	540	1,070.9	2,003
MEAN	10.8	10.7	14.2	19.9	15.8	10.3	10.6	20.2	35.7	17.4	34.5	66.8
MAX	34	12	21	27	27	14	23	97	245	63	474	411
MIN	7.8	8.8	11	11	11	8.2	8.2	7.4	9.5	12	8.0	11
AC-FT	666	635	871	1,220	908	634	628	1,240	2,130	1,070	2,120	3,970

CAL YR 1967 TOTAL 27,511.1 MEAN 75.4 MAX 4,940 MIN 5.1 AC-FT 54,570
WTR YR 1968 TOTAL 8,115.5 MEAN 22.2 MAX 474 MIN 7.4 AC-FT 16,100

PEAK DISCHARGE (BASE, 1,300 CFS).--NO PEAK ABOVE BASE.

6-8702. Smoky Hill River at New Cambria, Kans.

Location.--Lat 38°51'13", long 97°27'52", on west line NW¼NW¼ sec. 8, T. 14 S., R. 1 W., at downstream side of county highway bridge, 3 miles southeast of New Cambria, Saline County, 7.4 miles upstream from Gypsum Creek, and about 15.4 miles upstream from Solomon River.

Drainage area.--11,730 sq mi, approximately.

Records available.--October 1962 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,157.96 ft, levels by Corps of Engineers. Prior to Mar. 27, 1963, wire-weight gage and Mar. 27, 1963 to Sept. 30, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--6 years, 345 cfs (249,800 acre-ft per year).

Extremes.--Maximum discharge during year, 2,510 cfs Oct. 8 (gage height, 13.17 ft); minimum, 30 cfs July 23, 24.
1962-68: Maximum discharge, 11,200 cfs Sept. 20, 1967 (gage height, 27.32 ft); minimum, 18 cfs July 16, 17, 1966.

Remarks.--Records good except those for winter months, which are poor. Records of chemical analyses, water temperatures and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,250	216	157	100	142	93	80	107	98	62	73	264
2	1,130	218	158	100	140	161	80	101	106	62	109	138
3	1,060	225	156	100	137	117	187	98	128	59	118	96
4	1,000	225	153	100	136	112	306	97	107	53	118	85
5	959	216	151	100	135	107	356	96	93	51	145	80
6	942	207	151	100	133	109	181	96	85	50	105	81
7	1,600	193	149	100	130	105	139	110	79	53	80	84
8	2,360	191	142	100	127	103	122	113	76	49	70	73
9	1,550	188	144	100	126	103	109	109	87	58	63	66
10	1,020	256	144	100	126	102	106	100	101	54	59	64
11	893	634	142	100	126	101	103	97	99	45	55	65
12	837	652	143	100	125	99	99	97	101	54	52	62
13	894	652	144	100	121	98	97	101	61	65	50	61
14	1,000	660	143	100	115	99	164	130	54	49	49	59
15	1,050	473	141	100	122	96	273	117	131	41	47	59
16	1,240	257	139	100	130	96	179	113	247	36	52	59
17	1,030	220	152	100	128	92	166	102	333	51	59	62
18	623	200	159	105	122	94	120	95	224	48	52	60
19	390	192	165	115	120	89	114	95	140	40	47	76
20	343	186	177	130	122	90	223	94	114	35	46	77
21	312	180	165	135	121	91	276	93	104	33	46	66
22	295	178	159	145	118	90	196	235	98	32	46	61
23	277	172	148	150	116	90	144	449	152	31	44	60
24	263	171	141	155	123	90	127	258	177	32	46	60
25	251	167	135	160	131	89	115	209	122	38	46	57
26	239	165	130	155	126	87	113	159	99	39	44	210
27	236	161	125	153	125	89	111	143	89	48	47	760
28	223	154	120	149	87	84	114	145	81	93	96	987
29	219	154	115	149	75	81	113	128	74	110	87	1,730
30	212	155	110	145	------	81	111	113	67	101	81	1,440
31	206	------	105	142	------	82	------	106	------	56	296	------
TOTAL	23,904	7,918	4,463	3,688	3,585	3,020	4,624	4,106	3,527	1,628	2,328	7,102
MEAN	771	264	144	119	124	97.4	154	132	118	52.5	75.1	237
MAX	2,360	660	177	160	142	161	356	449	333	110	296	1,730
MIN	206	154	105	100	75	81	80	93	54	31	44	57
AC-FT	47,410	15,710	8,850	7,320	7,110	5,990	9,170	8,140	7,000	3,230	4,620	14,090

CAL YR 1967 : TOTAL 255,327 MEAN 700 MAX 10,300 MIN 26 AC-FT 506,400
WTR YR 1968 : TOTAL 69,893 MEAN 191 MAX 2,360 MIN 31 AC-FT 138,600

6-8703. Gypsum Creek near Gypsum, Kans.

Location.--Lat 38°39'11", long 97°25'10", on south line of sec. 15, T. 16 S., R. 1 W., at downstream side of highway bridge, 2.6 miles upstream from Stag Creek, 3.5 miles south of Gypsum, Saline County, and 22.7 miles upstream from mouth.

Drainage area.--120 sq mi, approximately.

Records available.--October 1954 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage 1,232.16 ft above mean sea level, datum of 1929. Prior to July 21, 1959, wire-weight and crest-stage gages and July 21, 1959 to Nov. 15, 1960, graphic water-stage recorder at same site and datum.

Average discharge.--14 years, 23.1 cfs (16,720 acre-ft per year).

Extremes.--Maximum discharge during year, 1,760 cfs Oct. 7 (gage height, 16.96 ft); minimum, 0.13 cfs Sept. 30.
1954-68: Maximum discharge, 11,400 cfs June 26, 1965 (gage height, 20.71 ft); no flow at times in most years.
Maximum stage known since at least 1869, 22.2 ft May 29, 1903; flood in April 1929 reached a stage of 21.9 ft, and that of July 11, 1951, a stage of 21.7 ft, from floodmark; information from newspapers and local residents.

Remarks.--Records good except those for winter months, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	72	18	8.0	21	16	11	15	12	3.3	2.3	6.0
2	38	57	19	8.0	18	16	12	14	10	3.4	3.4	3.2
3	33	121	22	9.0	17	13	269	12	9.0	3.2	5.0	2.4
4	30	64	20	10	17	14	109	10	9.3	2.9	2.2	55
5	29	39	18	12	16	16	45	9.7	8.4	2.7	1.2	19
6	36	35	17	9.0	16	15	34	14	8.2	2.0	.86	6.9
7	1,180	32	16	9.0	15	14	31	76	7.8	2.1	.66	4.1
8	357	31	16	10	14	15	23	30	7.2	1.6	.74	2.8
9	118	30	16	12	15	15	19	16	8.5	1.8	.69	1.9
10	70	30	16	12	15	14	19	14	27	1.9	2.6	1.5
11	55	29	17	11	13	13	18	15	18	1.8	1.6	1.4
12	50	27	17	10	14	13	17	16	10	1.4	1.1	1.2
13	46	25	16	10	14	13	17	17	7.4	1.2	.99	1.0
14	38	24	14	11	15	14	31	27	6.3	1.1	.88	.87
15	82	24	13	12	17	14	14	16	46	1.0	.82	.68
16	61	24	14	13	15	13	12	11	150	1.0	.72	.67
17	42	22	24	15	15	13	103	10	32	.99	6.9	.78
18	39	20	89	18	15	15	46	9.3	16	.72	4.0	.96
19	36	19	101	25	17	14	31	8.3	11	.51	3.5	.86
20	36	19	41	42	17	13	116	8.1	8.4	.58	1.0	.60
21	34	19	33	52	14	12	60	8.1	6.7	.55	.63	.42
22	33	19	28	40	15	13	77	17	6.1	.60	.49	.43
23	33	19	25	40	17	12	50	104	5.4	.49	.39	2.5
24	34	19	30	32	18	15	31	66	4.9	.44	.92	1.4
25	31	19	37	31	19	16	26	54	4.9	5.1	.82	.78
26	30	18	26	35	18	15	23	55	5.3	37	.47	.50
27	31	16	20	30	16	16	21	26	5.1	8.5	.33	.40
28	30	16	16	27	16	13	20	18	4.6	3.0	26	.29
29	32	17	15	27	13	13	18	14	4.1	2.3	57	.20
30	30	18	13	22	------	13	16	12	3.5	1.7	41	.15
31	32	------	8.0	20	------	13	------	11	------	1.3	12	------
TOTAL	2,769	924	775.0	622.0	462	434	1,319	733.5	463.1	96.18	181.21	118.89
MEAN	89.3	30.8	25.0	20.1	15.9	14.0	44.0	23.7	15.4	3.10	5.85	3.96
MAX	1,180	121	101	52	21	16	269	104	150	37	57	55
MIN	29	16	8.0	8.0	13	12	11	8.1	3.5	.44	.33	.15
AC-FT	5,490	1,830	1,540	1,230	916	861	2,620	1,450	919	191	359	236

CAL YR 1967 TOTAL 20,820.05 MEAN 57.0 MAX 1,990 MIN .40 AC-FT 41,300
WTR YR 1968 TOTAL 8,897.88 MEAN 24.3 MAX 1,180 MIN .15 AC-FT 17,650

PEAK DISCHARGE (BASE, 650 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	1600	16.96	1,760				

6-8710. North Fork Solomon River at Glade, Kans.

Location.--Lat 39°40'40", long 99°18'30", on west line sec. 25, T. 4 S., R. 18 W., at downstream side of bridge on U.S. Highway 183, half a mile south of Glade, Phillips County.

Drainage area.--849 sq mi.

Records available.--October 1952 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,754.04 ft above mean sea level, datum of 1929. Prior to June 16, 1960, graphic water-stage recorder and June 16, 1960, to Feb. 17, 1965, digital water-stage recorder, both at datum 2.00 ft higher.

Average discharge.--16 years, 39.1 cfs (28,310 acre-ft per year).

Extremes.--Maximum discharge during year, 14,200 cfs Aug. 15 (gage height, 17.01 ft); no flow on many days.
1952-68: Maximum discharge, 23,300 cfs June 16, 1957 (gage height, 16.55 ft); no flow at times in each year.

Remarks.--Records good except those for winter periods, which are poor. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.60	3.6	7.6	.25	22	17	5.8	7.0	1.3	22	40	205
2	.50	4.6	7.0	.15	22	16	10	5.2	1.1	14	34	95
3	.40	5.2	5.7	.10	20	15	11	3.2	.90	7.6	29	58
4	0	4.0	5.3	.06	15	14	6.4	2.6	.60	3.8	26	43
5	0	4.0	5.2	.04	13	14	7.0	2.6	.10	2.8	23	32
6	0	4.0	5.2	.02	11	14	9.4	377	0	3.0	36	26
7	1.0	4.1	5.2	.02	9.6	14	8.2	308	0	2.4	20	20
8	2.6	4.3	5.2	0	9.0	14	7.6	35	0	1.7	13	878
9	1.7	4.6	5.2	0	8.0	12	7.0	19	0	0	31	242
10	1.1	5.2	5.2	0	7.4	11	5.2	17	27	0	524	121
11	1.0	5.8	5.1	0	7.0	10	6.4	21	13	0	882	81
12	.90	4.6	4.8	0	6.5	9.4	5.8	16	2.6	0	296	63
13	.40	4.0	4.5	0	6.2	11	5.8	18	2.4	0	91	53
14	.10	4.6	4.4	0	6.0	11	6.4	18	1,220	0	39	47
15	.50	5.2	4.4	0	5.9	11	5.8	12	114	0	6,210	40
16	.40	5.2	4.4	0	6.0	9.4	6.4	7.0	44	0	318	50
17	.40	5.2	4.4	0	6.2	10	4.0	5.2	31	0	132	51
18	.50	4.0	4.4	0	6.6	9.4	3.6	3.8	23	0	86	99
19	.40	4.0	4.5	0	7.4	8.8	12	3.4	17	0	60	51
20	.50	4.6	8.0	0	8.5	6.4	16	3.2	13	0	46	38
21	.80	5.2	6.2	0	11	6.4	11	3.2	10	0	35	34
22	.30	5.2	4.5	3.5	15	8.8	9.4	3.2	7.0	0	29	28
23	1.3	5.8	6.0	6.0	19	9.0	11	3.2	4.6	0	24	24
24	1.1	5.2	8.0	11	22	9.2	13	3.0	3.6	0	18	20
25	1.0	5.2	8.0	19	21	9.4	24	3.6	5.2	0	15	17
26	1.1	5.2	4.0	23	20	9.4	15	4.6	3.0	46	13	16
27	1.2	5.2	3.0	24	20	9.4	11	3.4	2.4	698	14	15
28	1.6	8.2	2.0	26	19	7.6	23	3.2	1.9	413	13	14
29	1.9	6.4	1.0	25	18	7.6	18	2.4	24	142	20	12
30	2.6	7.0	.60	24	------	7.0	8.8	1.8	42	80	258	12
31	3.2	------	.40	23	------	6.4	------	1.6	------	52	404	------
TOTAL	29.10	149.4	149.40	185.14	368.3	327.6	294.0	917.4	1,614.70	1,488.3	9,779	2,485
MEAN	.94	4.98	4.82	5.97	12.7	10.6	9.80	29.6	53.8	48.0	315	82.8
MAX	3.2	8.2	8.0	26	22	17	24	377	1,220	698	6,210	878
MIN	0	3.6	.40	0	5.9	6.4	3.6	1.6	0	0	13	12
AC-FT	58	296	296	367	731	650	583	1,820	3,200	2,950	19,400	4,930

CAL YR 1967 TOTAL 8,404.28 MEAN 23.0 MAX 1,360 MIN 0 AC-FT 16,670
WTR YR 1968 TOTAL 17,787.34 MEAN 48.6 MAX 6,210 MIN 0 AC-FT 35,280

PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
5-06	2100	13.20	5,760	8-15	0600	17.01	14,200
6-14	0900	12.26	4,590				

6-8715. Bow Creek near Stockton, Kans.

Location.--Lat 39°34', long 99°17', on west line sec. 1, T. 6 S., R. 18 W., at downstream side of bridge on U.S. Highway 183, 8.5 miles north of Stockton.

Drainage area.--337 sq mi.

Records available.--November 1950 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,801.80 ft above mean sea level, datum of 1929. Prior to June 28, 1951, wire-weight gage and June 28, 1951 to Nov. 11, 1965, graphic water-stage recorder at same site and datum.

Average discharge.--17 years (1951-68), 15.7 cfs (11,370 acre-ft per year).

Extremes.--Maximum discharge during year, 9,140 cfs Aug. 15 (gage height, 12.81 ft); no flow at times.
1950-68: Maximum discharge, 12,900 cfs July 12, 1951 (gage height, 13.6 ft), from rating curve extended above 2,400 cfs on basis of contracted-opening measurement of peak flow; no flow at times.

Remarks.--Records good except those for winter periods, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	2.9	4.0	.90	4.8	6.6	3.8	4.2	3.6	.63	.42	164
2	1.7	4.0	3.8	.75	4.4	6.9	4.1	3.9	3.5	.63	.28	88
3	1.7	4.0	3.3	.70	4.3	5.4	4.4	3.9	3.2	.56	.21	44
4	1.5	3.8	4.0	.70	3.8	5.7	4.5	3.9	2.9	.49	0	28
5	1.6	3.6	3.8	.65	3.4	7.2	4.4	3.6	2.6	.49	0	22
6	1.9	3.6	3.5	.65	3.2	6.0	4.5	5.0	2.4	1.0	0	19
7	2.0	3.6	3.6	.65	3.0	5.7	4.2	503	2.2	1.2	0	17
8	2.1	3.6	3.6	.65	3.2	5.9	3.9	37	2.6	1.1	0	16
9	2.0	3.6	4.0	.65	3.4	5.9	3.9	21	3.0	.56	4.8	215
10	2.0	3.5	3.5	.65	3.5	5.7	4.1	14	5.9	.28	230	142
11	2.0	3.5	2.9	.70	3.3	5.6	3.9	15	6.0	.14	27	45
12	2.0	3.3	3.8	.80	2.6	5.4	3.8	12	4.2	.21	27	25
13	1.9	3.3	3.3	1.4	4.0	5.7	3.8	11	2.9	.07	112	20
14	1.9	3.3	2.4	2.5	4.7	5.7	3.5	11	2.6	0	38	16
15	1.9	3.3	2.5	3.0	4.5	5.4	3.3	10	2.6	0	3,260	15
16	2.0	3.5	2.6	3.2	4.3	5.3	3.9	9.0	2.7	0	217	18
17	2.0	3.5	2.8	3.4	3.6	5.3	3.9	8.1	2.5	0	90	20
18	2.0	3.5	3.0	3.6	4.0	5.3	3.9	7.5	2.2	0	73	27
19	2.0	3.5	3.0	4.0	5.5	5.1	4.2	6.6	2.1	0	62	18
20	2.1	3.5	3.0	4.0	5.8	5.3	4.4	5.9	1.8	0	44	16
21	2.1	3.5	3.0	4.5	5.6	5.3	4.1	5.6	1.6	0	32	13
22	2.1	3.6	2.5	4.7	5.6	5.1	3.9	5.4	1.5	0	27	11
23	2.2	3.6	2.5	5.0	5.8	4.4	4.1	5.3	1.3	0	24	12
24	2.2	3.6	2.5	5.2	6.3	4.4	4.4	5.0	1.4	0	22	11
25	2.1	3.6	2.5	5.4	6.8	4.2	4.4	5.1	11	1.1	20	10
26	2.2	3.6	2.2	5.8	7.4	3.8	4.5	5.0	2.7	.90	19	9.5
27	2.2	3.6	2.1	6.0	6.3	3.9	4.2	4.7	1.8	7.2	18	9.0
28	2.4	3.6	1.9	6.2	6.2	3.8	4.4	4.4	1.5	3.8	18	8.5
29	2.7	4.4	1.7	6.6	5.5	3.9	4.2	3.9	1.0	2.7	30	8.0
30	2.7	4.0	1.4	6.0	------	3.9	4.4	3.8	.70	1.2	26	8.0
31	2.9	------	1.1	5.6	------	3.9	------	3.6	------	.70	83	------
TOTAL	63.9	107.5	89.8	94.55	134.8	161.7	123.0	747.4	86.00	24.96	4,504.71	1,075.0
MEAN	2.06	3.58	2.90	3.05	4.65	5.22	4.10	24.1	2.87	.81	145	35.8
MAX	2.9	4.4	4.0	6.6	7.4	7.2	4.5	503	11	7.2	3,260	215
MIN	1.5	2.9	1.1	.65	2.6	3.8	3.3	3.6	.70	0	0	8.0
AC-FT	127	213	178	188	267	321	244	1,480	171	50	8,930	2,130

CAL YR 1967 TOTAL 2,760.60 MEAN 7.56 MAX 724 MIN .30 AC-FT 5,480
WTR YR 1968 TOTAL 7,213.32 MEAN 19.7 MAX 3,260 MIN 0 AC-FT 14,310

PEAK DISCHARGE (BASE, 600 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
5-07	1000	8.55	1,180	8-15	0600	12.81	9,140
8-10	0400	8.47	1,140				

6-8717. Kirwin Reservoir at Kirwin, Kans.

Location.--Lat 39°40', long 99°07', in SE¼ sec. 33, T. 4 S., R. 16 W., in control-house structure at outlet works of Kirwin dam on North Fork Solomon River, half a mile south of Kirwin, Phillips County, 1.6 miles upstream from Deer Creek, and at mile 66.6.

Drainage area.--1,360 sq mi, approximately.

Records available.--September 1955 to September 1968. Monthly records only prior to October 1956.

Gage.--Water-stage recorder and servo-manometer follower. Datum of gage is at mean sea level (levels by Bureau of Reclamation). Prior to Aug. 7, 1957, mercury-column or staff gages at same site and datum.

Extremes.--Maximum elevation during year, 1,727.42 ft Sept. 23, 24, 25 (contents, 90,420 acre-ft); minimum, 1,722.18 ft Aug. 8 (contents, 67,420 acre-ft).
1955-68: Maximum elevation, 1,732.15 ft June 10, 1961 (contents, 114,900 acre-ft); minimum elevation since first filling of irrigation pool, 1,719.71 ft Dec. 21, 1964 (contents, 57,820 acre-ft).

Remarks.--Reservoir is formed by compacted earth-fill dam. Storage began Sept. 19, 1955. Total capacity, 513,000 acre-ft, consisting of the following: dead storage, 6,400 acre-ft below elevation 1,693.00 ft (sill of trashrack structure); irrigation pool 88,800 acre-ft between elevations 1,693.0 and 1,728.4 ft; flood control pool, 219,400 acre-ft between elevations 1,728.4 and 1,757.3 ft (crest of uncontrolled spillway); and uncontrolled storage, 198,400 acre-ft between elevations 1,757.3 and 1,773.0 ft. Reservoir is used to store water for flood control and irrigation in Kirwin Unit, Missouri River Basin project. Figures given herein represent elevations above mean sea level.

Capacity table (elevation, in feet, and contents, in acre-feet)

1,722	66,700
1,724	74,980
1,726	83,790
1,728	93,220

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.98	23.63	23.60	23.63	23.74	23.89	23.90	23.86	24.62	25.03	22.76	26.69
2	23.98	23.64	23.60	23.63	23.73	23.88	23.93	23.83	24.61	24.95	22.70	26.77
3	23.98	23.63	23.62	23.63	23.77	23.9[illegible]	23.94	23.85	24.58	24.86	22.62	26.76
4	23.95	23.62	23.62	23.64	23.77	23.9[illegible]	23.88	23.84	24.55	24.76	22.57	26.77
5	23.93	23.63	23.62	23.63	23.77	23.91	23.88	23.80	24.51	24.68	22.50	26.77
6	23.97	23.62	23.63	23.62	23.77	23.92	23.89	24.02	24.47	24.59	22.39	26.76
7	23.90	23.62	23.61	23.63	23.77	23.96	23.88	24.47	24.46	24.52	22.30	26.78
8	23.89	23.62	23.60	23.63	23.80	23.98	23.87	24.48	24.42	24.41	22.18	27.05
9	23.87	23.63	23.60	23.63	23.80	23.97	23.87	24.50	24.48	24.29	22.33	27.13
10	23.86	23.63	23.60	23.63	23.78	23.96	23.87	24.51	24.51	24.18	22.53	27.21
11	23.85	23.65	23.62	23.63	23.79	23.93	23.87	24.52	24.49	24.09	22.83	27.24
12	23.84	23.64	23.60	23.63	23.77	23.93	23.87	24.54	24.47	24.02	23.92	27.25
13	23.83	23.64	23.60	23.62	23.77	23.94	23.87	24.59	24.50	23.92	22.94	27.25
14	23.81	23.64	23.58	23.62	23.77	23.96	23.86	24.59	25.39	23.82	22.93	27.25
15	23.80	23.63	23.59	32.62	23.77	23.97	23.86	24.58	25.45	23.68	26.00	27.22
16	23.79	23.65	23.62	23.62	23.75	23.98	23.84	24.56	25.46	23.58	26.34	27.29
17	23.77	23.64	23.63	23.63	23.75	24.01	23.80	24.57	25.47	23.52	26.41	27.27
18	23.77	23.64	23.63	23.63	23.76	23.98	23.79	24.52	25.46	23.41	26.44	27.30
19	23.75	23.63	23.63	23.63	23.78	23.96	23.88	24.52	25.46	23.32	26.46	27.33
20	23.75	23.63	23.65	23.63	23.77	23.93	23.85	24.52	25.47	23.21	26.47	27.35
21	23.75	23.63	23.62	23.63	23.80	23.92	23.89	24.53	25.43	23.06	26.45	27.39
22	23.74	23.63	23.62	23.63	23.80	23.91	23.88	24.52	25.42	22.98	26.42	27.38
23	23.73	23.63	23.61	23.63	23.81	23.92	23.84	24.53	25.38	22.88	26.37	27.42
24	23.71	23.63	23.62	23.65	23.83	23.93	23.85	24.53	25.38	22.81	26.31	27.42
25	23.69	23.63	23.62	23.67	23.85	23.94	23.83	24.58	25.36	22.83	26.28	27.42
26	23.67	23.62	23.63	23.67	23.87	23.95	23.84	24.58	25.30	22.75	26.23	27.41
27	23.65	23.60	23.63	23.68	23.87	23.94	23.84	24.59	25.26	22.86	26.44	27.41
28	23.65	23.61	23.63	23.71	23.87	23.94	23.84	24.60	25.23	22.97	26.43	27.38
29	23.63	23.61	23.63	23.71	23.88	23.92	23.85	24.58	25.21	22.97	26.39	27.38
30	23.62	23.62	23.63	23.71	------	23.91	23.85	24.60	25.11	22.88	26.44	27.40
31	23.63	------	23.63	23.73	------	23.90	------	24.62	------	22.86	26.58	------
MAX	23.98	23.65	23.65	23.73	23.88	24.01	23.94	24.62	25.47	25.03	26.58	27.42
MIN	23.62	23.60	23.58	23.62	23.73	23.88	23.79	23.80	24.42	22.75	22.18	26.69
(+)	73,410	73,370	73,410	73,840	74,470	74,560	74,340	77,660	79,810	70,200	86,460	90,320
(‡)	-1,490	-40	+40	+430	+630	+90	-220	+3,320	+2,150	-9,610	+16,260	+3,860

CAL YR 1967 ..... (‡) -1,020
WTR YR 1968 ..... (‡) +15,420

+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
‡ CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 1,700 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.

6-8718. North Fork Solomon River at Kirwin, Kans.

Location.--Lat 39°40', long 99°07', in two channels, in SE¼ sec. 33 (river outlet gage) and SW¼ sec. 34 (spillway gage), T. 4 S., R. 16 W., 200 ft and 600 ft, respectively, downstream from toe of Kirwin Dam, half a mile and three quarters of a mile, respectively, south of Kirwin, Phillips County, 1.3 miles upstream from Deer Creek, and at mile 66.5.

Drainage area.--1,360 sq mi, approximately.

Records available.--August 1919 to June 1925, August 1928 to June 1932, December 1941 to September 1968.

Gage.--Digital water-stage recorder and concrete control on river outlet channel. Datum of gage is 1,659.50 ft above mean sea level (Bureau of Reclamation bench mark). Jan. 30, 1957 to May 16, 1966, graphic water-stage recorder at same site and datum. Graphic water-stage recorder on spillway channel. Datum of spillway channel gage is 1,650.81 ft above mean sea level (Bureau of Reclamation bench mark). Prior to June 25, 1942, wire-weight or chain gages and June 25, 1942 to July 31, 1955, graphic water-stage recorder, at site of former highway bridge 300 ft downstream from present river outlet gage at datum 1,656.95 ft above mean sea level (levels by Bureau of Reclamation). Aug. 1, 1955 to Jan. 29, 1957, staff gage on headwall of river outlet structure 200 ft upstream from present site at previously used datum.

Average discharge.--34 years (1919-24, 1928-31, 1942-68), 57.5 cfs (41,630 acre-ft per year).

Extremes.--Maximum discharge during year, 1.2 cfs Sept. 13; minimum, 0.01 cfs, Jan. 25-29.
1919-25, 1928-32, 1941-68: Maximum discharge, 24,000 cfs Sept. 18, 1919 (gage height, 22.5 ft, site and datum then in use), from rating curve extended above 10,000 cfs on basis of slope-area and contracted-opening measurements at gage height 22.3 ft; no flow at times in 1943, 1948, 1955-67.
Flood in June 1915 reached a stage of about 27 ft, site and datum in use prior to July 1955, from information by local residents.

Remarks.--Records good prior to Apr. 17 and fair thereafter. Flow regulated by Kirwin Reservoir (see station 6-8717) beginning Mar. 7, 1955. Figures of flow do not include diversion immediately above station into Kirwin Main Canal. Separate records are collected and computed for river outlet channel and for spillway channel. Figures given herein represent combined discharge. (Estimated no flow in spillway channel during this year.)

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.10	.05	.06	.03	.10	.12	.06	.12	.14	.14	.18
2	.10	.10	.09	.06	.05	.10	.10	.06	.12	.14	.14	.16
3	.12	.12	.10	.05	.05	.10	.12	.06	.12	.12	.16	.16
4	.12	.10	.10	.05	.05	.09	.12	.06	.12	.12	.16	.16
5	.12	.10	.09	.05	.05	.09	.10	.06	.12	.12	.16	.16
6	.12	.09	.10	.05	.09	.07	.09	.05	.14	.12	.16	.16
7	.12	.09	.12	.05	.10	.07	.12	.05	.14	.12	.16	.16
8	.12	.09	.10	.03	.10	.10	.10	.05	.14	.12	.16	.16
9	.14	.09	.09	.03	.09	.10	.10	.05	.14	.12	.18	.16
10	.12	.07	.09	.03	.10	.10	.09	.05	.14	.12	.22	.16
11	.12	.07	.09	.03	.10	.09	.09	.05	.14	.12	.18	.16
12	.12	.07	.09	.03	.10	.09	.07	.05	.14	.12	.16	.16
13	.14	.07	.09	.03	.09	.07	.09	.05	.14	.12	.16	.35
14	.12	.07	.07	.02	.09	.09	.12	.05	.14	.12	.16	.32
15	.12	.07	.07	.02	.07	.12	.10	.05	.14	.12	.20	.29
16	.12	.07	.07	.02	.07	10	.09	.05	.14	.14	.16	.29
17	.12	.07	.06	.02	.06	.09	.09	.05	.14	.14	.16	.25
18	.10	.06	.06	.02	.06	.09	.09	.05	.14	.14	.16	.25
19	.10	.06	.06	.02	.06	.10	.09	.05	.14	.12	.16	.25
20	.10	.06	.07	.02	.06	.10	.09	.05	.14	.12	.16	.25
21	.09	.06	.12	.02	.06	.09	.09	.05	.14	.12	.16	.25
22	.09	.05	.10	.02	.05	.09	.09	.05	.14	.14	.16	.25
23	.12	.05	.10	.02	.05	.09	.09	.05	.14	.14	.16	.35
24	.18	.05	.09	.02	.05	.09	.09	.05	.14	.14	.14	.35
25	.10	.07	.09	.01	.07	.09	.09	.05	.14	.16	.16	.35
26	.12	.07	.09	.01	.10	.07	.06	.09	.14	.14	.16	.39
27	.10	.07	.09	.01	.10	.09	.06	.09	.14	.14	.18	.39
28	.10	.06	.07	.01	.12	.10	.06	.09	.14	.14	.18	.35
29	.12	.06	.07	.02	.10	.12	.06	.09	.14	.14	.16	.39
30	.10	.06	.07	.02	------	.12	.06	.09	.14	.14	.16	.39
31	.10	------	.07	.02	------	.14	------	.09	------	.16	.16	------
TOTAL	3.56	2.22	2.62	0.87	2.17	2.95	2.73	1.84	4.10	4.06	5.08	7.65
MEAN	.11	.074	.085	.028	.075	.095	.091	.059	.14	.13	.16	.26
MAX	.18	.12	.12	.06	.12	.14	.12	.09	.14	.16	.22	.39
MIN	.09	.05	.05	.01	.03	.07	.06	.05	.12	.12	.14	.16
AC-FT	7.1	4.4	5.2	1.7	4.3	5.9	5.4	3.7	8.1	8.1	10	15

CAL YR 1967 TOTAL 17.57 MEAN .048 MAX .21 MIN 0 AC-FT 35
WTR YR 1968 TOTAL 39.85 MEAN .11 MAX .39 MIN .01 AC-FT 79

6-8719. Deer Creek near Phillipsburg, Kans.

Location.--Lat 39°46'50", long 99°25'20" in NW¼NW¼ sec. 24, T. 3 S., R. 19 W., at highway bridge 5 miles west of Phillipsburg, Phillips County.

Drainage area.--65.0 sq mi.

Records available.--October 1966 to September 1968.

Gage.--Digital water stage recorder. Altitude of gage is 1,950 ft (from topographic map).

Extremes.--1966-67: Maximum discharge during year, 5,950 cfs July 28 (gage height, 19.81 ft) from rating curve extended above 500 cfs on basis of slope-conveyance study; no flow at times.
1967-68: Maximum discharge during year, 2,270 cfs Aug. 10 (gage height, 13.67 ft); no flow at times.

Remarks.--Records good below 500 cfs and fair above except those for winter months, which are poor.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1966 TO SEPTEMBER 1967

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.39	.64	.76	.50	2.7	2.2	1.4	.91	4.8	.78	.84	0
2	.39	.64	.70	.55	2.6	2.0	1.4	.88	2.0	.74	.72	0
3	.39	.72	.70	.55	2.4	1.9	1.2	1.1	1.6	.73	.59	0
4	.30	.72	1.0	.60	2.1	1.4	1.2	1.1	1.4	.96	.50	0
5	.09	.76	1.2	.60	2.0	.90	1.3	1.7	1.9	3.8	.44	0
6	0	.76	1.3	.60	2.0	.80	1.2	2.0	1.1	1.2	.44	0
7	.36	.76	1.2	.55	2.0	.75	1.1	1.4	24	.94	.40	0
8	.42	.80	.95	.50	2.2	.75	1.7	1.1	10	33	.36	0
9	.42	.88	.60	.50	2.4	.80	1.4	1.1	1.6	2.2	.29	0
10	.21	.80	.45	.60	2.7	.90	1.1	1.0	1.9	1.3	.24	0
11	0	.96	.40	.70	3.1	1.1	1.3	.97	3.2	1.0	.20	0
12	0	.92	.40	.80	3.6	1.1	1.7	.94	16	1.3	.18	0
13	.39	.92	.45	1.0	4.6	1.1	5.8	.99	10	1.4	.15	0
14	.68	.96	.45	1.1	4.5	.90	1.2	1.4	2.8	1.0	.23	0
15	1.2	.88	.50	1.3	3.2	.90	.95	1.3	1.0	1.0	.32	0
16	.72	.88	.70	1.5	2.5	.90	.89	1.0	.99	1.3	.23	0
17	.68	.92	.80	1.5	1.8	.90	.80	.99	.87	1.1	.15	0
18	.68	.92	.90	1.4	2.0	.90	.83	.95	.77	1.1	.07	0
19	.68	.96	.95	1.2	2.1	1.0	.84	.88	1.7	1.0	.02	.15
20	.68	.96	.95	1.2	2.2	1.2	.91	.96	1.2	.98	.02	.41
21	.68	.96	.90	1.5	2.3	1.3	.89	.99	80	.84	0	.17
22	.60	1.0	.80	1.8	1.8	1.4	.83	.95	4.4	.69	0	0
23	.60	1.0	.70	2.0	1.5	1.4	.86	.89	1.9	.57	0	0
24	.60	1.0	.60	2.3	1.6	1.3	.92	.86	4.7	1.4	0	0
25	.60	1.0	.55	2.2	2.0	1.3	.92	.72	1.9	1.5	0	0
26	.60	1.0	.50	2.0	2.7	1.3	.92	139	1.2	.82	0	0
27	.60	1.0	.55	2.0	3.3	1.3	.95	30	1.1	90	0	0
28	.60	.92	.55	2.0	3.4	1.3	.94	2.5	.97	1,100	0	0
29	.60	.88	.50	2.3		1.3	.91	3.7	1.1	7.2	0	0
30	.60	.80	.45	2.6	------	1.4	.92	4.8	.88	1.7	0	0
31	.60	------	.50	2.8	------	1.2	------	28	------	1.1	0	------
TOTAL	15.36	26.32	21.96	40.75	71.3	36.90	37.28	235.08	186.98	1,262.65	6.39	0.73
MEAN	.50	.88	.71	1.31	2.55	1.19	1.24	7.58	6.23	40.7	.21	.02
MAX	1.2	1.0	1.30	2.80	4.6	2.2	5.8	139	80	1,100	.84	.41
MIN	0	.64	.40	.50	1.5	.75	.80	.72	.77	.57	0	0
AC-FT	30	52	44	81	141	73	74	466	371	2,500	13	1.4

CAL YR 1967: TOTAL MEAN MAX MIN AC-FT
WTR YR 1968: TOTAL 1,941.69 MEAN 5.32 MAX 1,100 MIN 0 AC-FT 3,850

PEAK DISCHARGE (BASE, 200 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
5-26	1845	10.14	1,040	7-28	0230	19.81	5,950
6-21	0415	5.33	203				

6-8719. Deer Creek near Phillipsburg, Kans.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.33	.84	.07	2.0	1.3	.46	1.4	1.2	0	0	.16
2	0	.41	.84	.06	2.1	1.3	.54	1.3	1.0	0	0	0
3	0	.44	.70	.05	2.3	1.3	.77	1.2	.92	0	0	0
4	0	.41	.70	.04	2.2	1.3	.91	1.1	.78	0	7.9	0
5	0	.40	.72	.03	2.1	1.3	.72	1.1	.67	0	3.4	0
6	0	.50	.78	.02	2.0	1.3	.56	1.9	.60	0	.41	0
7	0	.56	.84	.02	1.9	1.5	.61	1.5	.61	0	0	0
8	0	.60	.90	.02	1.8	1.4	.55	.99	.57	0	0	0
9	0	.66	.96	.02	1.7	.76	.48	.84	4.5	0	.55	0
10	0	.73	1.0	.02	1.5	.65	.51	1.1	8.1	0	478	0
11	0	.62	1.0	.02	1.4	.60	.52	1.7	2.8	0	24	0
12	0	.59	1.0	.02	1.2	.58	.55	1.0	2.0	0	1.5	0
13	0	.56	.90	.02	1.2	1.2	.66	7.4	1.7	0	.70	0
14	0	.59	.86	.02	1.2	.58	.63	4.3	1.6	0	.57	0
15	0	.60	.84	.02	1.2	.54	.31	1.7	1.5	0	118	0
16	0	.62	.80	.03	1.3	.49	.01	1.5	1.7	0	2.7	0
17	.02	.60	.70	.06	1.2	.52	.05	1.5	1.6	0	1.2	0
18	.07	.60	.65	.10	1.2	.28	.28	1.5	1.4	0	.96	0
19	.07	.60	.60	.20	1.2	.28	.91	1.4	.95	0	.84	0
20	.10	.63	.56	.30	1.2	.46	1.5	1.4	.05	0	.69	0
21	.12	.95	.52	.40	1.0	.92	.79	1.5	0	0	.20	0
22	.17	.58	.50	.50	.90	.96	1.7	1.6	0	0	0	0
23	.22	.62	.50	.70	1.0	1.0	1.0	1.6	0	0	0	0
24	.16	.73	.50	.90	1.1	.58	.48	1.6	0	0	0	0
25	.13	.72	.50	1.0	1.2	.58	.44	1.8	0	0	0	0
26	.20	.62	.44	1.3	1.3	.54	.48	2.0	0	.04	0	0
27	.20	.58	.37	1.6	1.3	.51	7.9	1.6	0	28	.04	0
28	.25	.54	.32	1.9	1.3	.48	19	1.4	0	3.1	.11	0
29	.38	.84	.26	2.1	1.3	.48	2.3	1.3	0	.73	.06	0
30	.82	.84	.16	2.0	------	.49	1.5	1.2	0	0	.77	0
31	.38	------	.10	2.0	------	.50	------	1.3	------	0	.76	------
TOTAL	3.29	18.07	20.36	15.54	42.30	24.68	47.12	52.73	34.25	31.87	643.36	0.16
MEAN	.11	.60	.66	.50	1.46	.80	1.57	1.70	1.14	1.03	20.8	.005
MAX	.82	.95	1.0	2.1	2.3	1.5	19	7.4	8.1	28	478	.16
MIN	0	.33	.10	.02	.90	.28	.01	.84	0	0	0	0
AC-FT	6.5	36	40	31	84	49	93	105	68	63	1,280	.3

CAL YR 1967 TOTAL 1,919.78 MEAN 5.26 MAX 1,100 MIN 0 AC-FT 3,810
WTR YR 1968 TOTAL 933.73 MEAN 2.55 MAX 478 MIN 0 AC-FT 1,850

PEAK DISCHARGE (BASE, 200 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8-10	0945	13.67	2,270	8-15	0415	7.21	446

6-8723. Middle Beaver Creek near Smith Center, Kans.

Location.--Lat 39°48'00", long 98°51'10", on south line sec. 12, T. 3 S., R. 14 W., at upstream side of highway bridge 2 miles north of U.S. Highway 36, 3 miles upstream from East Beaver Creek, and 4 miles northwest of Smith Center, Smith County.

Drainage area.--71 sq mi, approximately.

Records available.--April 1961 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,693.31 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--7 years, 5.50 cfs (3,980 acre-ft per year).

Extremes.--Maximum discharge during year, 2,520 cfs Aug. 15 (gage height, 17.55 ft); no flow at times.
1961-68: Maximum discharge, that of Aug. 15, 1968; no flow at times in most years.

Remarks.--Records fair except those for winter months, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.14	0	.12	0	.15	.59	.21	.56	.49	0	0	.55
2	.16	.05	.14	0	.15	.57	.26	.55	.36	0	0	.44
3	.13	.05	.12	0	.15	.53	.53	.64	.27	0	0	.33
4	.12	.04	.08	0	.15	.51	.55	.58	.15	0	0	.81
5	.09	.04	.08	0	.15	.54	.36	.54	.05	0	0	.70
6	.08	.04	.08	0	.15	.50	.25	.85	0	0	0	.49
7	.09	.04	.09	0	.15	.47	.20	420	0	0	0	.37
8	.09	.04	.17	0	.15	.55	.16	15	0	.01	0	.29
9	.12	.04	.20	0	.15	.54	.16	5.5	.04	.01	2.9	.25
10	.09	.04	.22	0	.15	.45	.16	3.2	31	0	244	.20
11	.06	.07	.25	0	.15	.44	.15	3.0	147	.02	8.1	.18
12	0	.08	.28	0	.15	.54	.12	2.5	10	.03	1.4	.12
13	.03	.08	.17	0	.15	.38	123	2.0	3.9	.02	.35	.08
14	.04	.08	.10	0	.15	.35	17	44	13	0	.03	.06
15	.02	.07	.07	.03	.15	.32	4.5	6.8	3.4	.03	1,280	.03
16	.04	.04	.07	.06	.16	.34	1.6	2.7	37	.01	52	53
17	0	.04	.07	.06	.20	.34	.77	1.3	7.9	.04	10	16
18	0	.04	.07	.06	.36	.32	.58	.81	1.4	.04	4.1	3.8
19	0	.04	.07	.06	.34	.32	.96	.65	.64	.04	2.4	1.6
20	0	.04	.07	.06	.34	.32	6.3	.62	.43	.03	1.7	.82
21	.04	.04	.07	.10	.34	.32	5.0	.56	.33	0	.99	.56
22	.06	.04	.07	.10	.35	.32	37	.91	.17	.02	.62	.43
23	.08	.05	.07	.10	.38	.32	6.4	1.6	.04	79	.49	1.8
24	.08	.08	.07	.10	.42	.33	2.1	1.4	0	11	.38	.61
25	.08	.08	.07	.10	.46	.44	1.1	.89	0	1.2	.33	.35
26	.08	.08	.07	.15	.58	.48	.74	1.7	.15	.32	.30	.25
27	.04	.08	.05	.15	.48	.45	.68	1.3	.07	15	.24	.21
28	0	.08	.03	.15	.50	.40	.69	.86	.03	3.6	.24	.12
29	0	.11	0	.15	.52	.40	.66	.58	0	.36	.28	.07
30	0	.12	0	.15	------	.39	.58	.50	0	.01	.43	.03
31	0	------	0	.15	------	.32	------	.49	------	0	.68	------
TOTAL	1.76	1.72	3.02	1.73	7.68	13.09	212.77	522.59	257.82	110.79	1,611.96	84.55
MEAN	.057	.057	.097	.056	.26	.42	7.09	16.9	8.59	3.57	52.0	2.82
MAX	.16	.12	.28	.15	.58	.59	123	420	147	79	1,280	53
MIN	0	0	0	0	.15	.32	.12	.49	0	0	0	.03
AC-FT	3.5	3.4	6.0	3.4	15	26	422	1,040	511	220	3,200	168

CAL YR 1967 TOTAL 1,749.22 MEAN 4.79 MAX 379 MIN 0 AC-FT 3,470
WTR YR 1968 TOTAL 2,829.48 MEAN 7.73 MAX 1,280 MIN 0 AC-FT 5,610

PEAK DISCHARGE (BASE, 450 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
4-13	0545	12.21	717	8-10	0715	11.32	592
5-07	0630	14.47	1,270	8-15	0715	17.55	2,520
6-11	0530	10.50	510				

6-8725. North Fork Solomon River at Portis, Kans.

Location.--Lat 39°33'15", long 98°41'31", on west line sec. 5, T. 6 S., R. 12 W., at downstream side of bridge on U.S. Highway 281, 0.5 mile south of Portis, Osborne County, and at mile 25.4.

Drainage area.--2,315 sq mi, approximately.

Records available.--September 1945 to September 1968. Prior to Oct. 1, 1964 published as "near Downs".

Gage.--Digital water-stage recorder. Datum of gage is 1,490.71 ft above mean sea level, datum of 1929. Prior to Dec. 5, 1946, wire-weight gage and Dec. 5, 1946, to Sept. 30, 1964 graphic water-stage recorder at site 9.0 miles downstream at datum 30.39 ft lower.

Average discharge.--23 years, 163 cfs (118,000 acre-ft per year).

Extremes.--Maximum discharge during year, 10,200 cfs Aug. 16 (gage height, 22.95 ft); minimum daily, 10 cfs Dec. 28 to Jan. 1.
1945-68: Maximum discharge, 35,700 cfs July 12, 1951 (gage height, 30.41 ft), from rating curve extended above 21,000 cfs by logarithmic plotting; no flow at times in 1955-56.
Flood of June 15, 1915, reached a stage about 1 ft higher than that of July 12, 1951, from information by Kansas Highway Commission.

Remarks.--Records good except those for winter periods, which are poor. Flow regulated by Kirwin Reservoir beginning Mar. 7, 1955 (see station 6-8717). Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	21	21	10	23	22	19	22	20	17	26	52
2	21	21	21	11	22	24	20	28	18	16	20	49
3	21	21	21	11	22	23	22	23	17	16	20	47
4	21	21	21	12	21	23	20	21	16	17	19	48
5	21	21	21	13	21	24	19	20	15	19	17	44
6	21	21	23	14	21	24	20	21	21	28	14	44
7	21	21	23	15	21	24	19	1,130	20	20	14	46
8	21	21	22	16	21	25	18	1,320	37	18	19	41
9	21	21	21	17	21	24	18	133	35	18	19	38
10	21	21	21	18	21	24	18	71	28	21	357	38
11	21	21	21	18	20	30	18	55	128	18	1,320	35
12	21	21	21	20	20	22	18	46	180	16	407	33
13	21	21	21	21	20	22	20	41	56	16	119	30
14	21	20	20	23	18	22	104	37	823	15	70	31
15	21	21	20	24	19	21	39	56	513	14	1,560	27
16	21	21	20	26	20	20	32	43	101	16	8,730	64
17	21	21	20	28	20	20	23	46	92	22	1,130	146
18	21	21	20	29	20	20	20	32	74	17	200	146
19	21	21	20	31	20	19	22	26	44	13	139	66
20	20	21	20	33	21	19	25	23	34	14	110	43
21	20	21	20	28	18	19	23	21	26	14	89	33
22	20	21	20	22	15	20	30	23	22	28	75	28
23	20	21	20	24	18	20	45	22	20	380	69	208
24	20	21	19	22	21	20	46	20	19	111	61	90
25	20	21	14	21	22	20	28	21	23	85	56	40
26	20	21	12	21	22	20	23	23	28	36	54	29
27	20	21	11	21	21	20	22	23	36	51	49	26
28	20	21	10	22	24	19	22	22	29	103	78	24
29	21	21	10	23	21	19	21	21	19	63	123	22
30	21	21	10	23	------	19	21	20	18	33	71	22
31	21	------	10	24	------	18	------	20	------	30	62	------
TOTAL	642	624	574	646	594	666	795	3,430	2,512	1,285	15,097	1,590
MEAN	20.7	21.0	18.5	20.8	20.5	21.5	26.5	111	83.7	41.5	487	53.0
MAX	21	21	23	33	24	30	104	1,320	823	380	8,730	208
MIN	20	20	10	10	15	18	18	20	15	13	14	22
AC-FT	1,270	1,250	1,140	1,280	1,180	1,320	1,580	6,800	4,980	2,550	29,940	3,150

CAL YR 1967 TOTAL 32,284 MEAN 88.4 MAX 6,790 MIN 10 AC-FT 64,030
WTR YR 1968 TOTAL 28,460 MEAN 77.8 MAX 8,730 MIN 10 AC-FT 56,450

6-8730. South Fork Solomon River above Webster Reservoir, Kans.

Location.--Lat 39°22', long 99°35', on west line sec. 8, T. 8 S., R. 20 W., at downstream side of highway bridge, 4 miles north of Damar, Rooks County, 7 miles downstream from Wild Horse Creek, and 11 miles upstream from Webster Dam.

Drainage area.--1,040 sq mi, approximately.

Records available.--January 1945 to September 1968. Prior to October 1953, published as "at Webster".

Gage.--Digital water-stage recorder. Datum of gage is 1,936.51 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation). Prior to May 17, 1946, wire-weight gage, May 17, 1946, to May 20, 1951, graphic water-stage recorder and wire-weight gage (destroyed by flood), and May 21 to Sept. 30, 1951, staff gage, all at site 8 miles downstream at datum 94.52 ft lower. Oct. 1, 1951, to May 22, 1952, wire-weight gage at bridge near Stockton, 23 miles downstream, at different datum. May 23, 1952, to May 23, 1954, graphic water-stage recorder and staff gage at site 8 miles downstream at datum 94.52 ft lower. May 24, 1954, to Sept. 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--23 years, 85.7 cfs (62,040 acre-ft per year).

Extremes.--Maximum discharge during year, 2,470 cfs May 7 (gage height, 7.32 ft); no flow for many days.
1945-68: Maximum discharge, 55,200 cfs July 12, 1951 (gage height, 14.9 ft, from floodmarks, site and datum then in use), from rating curve extended above 11,000 cfs on basis of slope-area measurement of peak flow; no flow at times in most years.
Maximum flood known, that of July 12, 1951; second highest known, that of June 1908 (13.4 ft, present site and datum), from information obtained from Kansas State Highway Commission.

Remarks.--Records good except those for winter periods, which are poor. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.62	.84	1.8	.40	16	20	11	11	2.9	.20	0	60
2	.58	1.2	1.6	.35	13	17	19	9.3	2.8	.29	0	41
3	.54	1.0	1.4	.30	15	16	21	8.2	2.4	.34	0	32
4	.50	1.0	1.5	.30	14	15	15	7.8	2.0	.34	0	29
5	.54	.98	1.5	.30	11	17	13	6.5	1.8	2.9	0	25
6	.66	.98	1.5	.30	12	18	13	16	1.7	15	0	23
7	.62	.98	1.4	.30	9.1	17	14	712	1.5	2.0	0	199
8	.58	1.0	1.4	.30	8.5	17	14	118	1.3	1.6	0	149
9	.54	1.2	1.7	.30	11	17	11	51	1.3	.95	33	57
10	.54	1.2	1.5	.30	13	16	11	35	24	.50	116	36
11	.58	1.2	1.4	.35	12	15	10	50	11	.25	60	27
12	.58	1.1	1.8	.40	12	14	11	38	3.2	.13	111	19
13	.54	1.2	1.4	.45	6.0	16	10	30	2.0	.07	51	16
14	.54	1.3	1.3	1.1	4.2	17	11	24	1.3	.03	17	14
15	.58	1.3	1.3	1.1	4.2	15	8.7	16	1.2	.02	1,250	12
16	.58	1.3	1.6	1.3	4.7	12	10	10	1.3	0	196	98
17	.62	1.3	1.7	1.4	5.5	12	9.7	7.2	1.2	0	59	221
18	.66	1.2	1.6	1.4	7.0	12	9.7	5.2	.95	.05	20	56
19	.66	1.3	1.8	1.4	9.0	11	17	4.4	.82	0	6.4	28
20	.70	1.3	1.9	1.8	12	11	21	4.0	.65	0	2.9	20
21	.70	1.3	1.3	1.9	13	12	19	3.8	.61	0	1.8	15
22	.70	1.3	1.1	2.3	16	14	20	4.2	.57	0	1.2	12
23	.70	1.3	1.4	4.3	17	13	18	4.5	.54	0	.78	11
24	.62	1.3	1.7	14	16	16	15	4.2	.50	0	.57	8.8
25	.77	1.3	1.8	17	16	17	16	7.2	.58	0	.40	7.5
26	.77	1.3	1.7	26	17	14	15	9.3	.57	0	.24	6.9
27	.77	1.3	1.6	24	17	12	14	6.2	.53	0	.06	6.0
28	.84	1.3	1.3	20	18	11	13	4.3	.43	0	.82	5.2
29	.84	1.8	1.1	18	18	11	12	3.5	.37	0	403	4.6
30	.84	1.8	.95	10	------	12	12	3.2	.26	0	184	4.5
31	.84	------	.50	12	------	12	------	2.9	------	0	119	------
TOTAL	20.15	36.88	45.55	163.35	347.2	449	414.1	1,216.9	70.28	24.67	2,634.17	1,243.5
MEAN	.65	1.23	1.47	5.27	12.0	14.5	13.8	39.3	2.34	.80	85.0	41.5
MAX	.84	1.8	1.9	26	18	20	21	712	24	15	1,250	221
MIN	.50	.84	.50	.30	4.2	11	8.7	2.9	.26	0	0	4.5
AC-FT	40	73	90	324	689	891	821	2,410	139	49	5,220	2,470

CAL YR 1967: TOTAL 4,542.58 MEAN 12.4 MAX 380 MIN 0 AC-FT 9,010
WTR YR 1968: TOTAL 6,665.75 MEAN 18.2 MAX 1,250 MIN 0 AC-FT 13,220

PEAK DISCHARGE (BASE, 3,200 CFS).--NO PEAK ABOVE BASE.

6-8731. Webster Reservoir near Stockton, Kans.

Location.--Lat 39°24'58", long 99°25'28", in sec. 27, T. 7 S., R. 19 W., on southeast shore near Webster Dam on South Fork Solomon River, 8 miles west of Stockton, Rooks County, and at mile 90.3.

Drainage area.--1,200 sq mi, approximately.

Records available.--June 1956 to September 1968. Prior to October 1956, monthly records only.

Gage.--Water-stage recorder (elevations above 1,873 ft only prior to July 31) and mercury-column gage near south end of dam read once daily. Datum of gage is at mean sea level (levels by Bureau of Reclamation).

Extremes.--Maximum elevation during year, 1,871.95 ft June 10 (contents, 21,520 acre-ft); minimum, 1,861.50 ft Aug. 14 (contents, 6,740 acre-ft).
1956-68: Maximum elevation, 1,899.66 ft June 10, 1961 (contents, 107,600 acre-ft); minimum since first filling of irrigation pool, that of Aug. 14, 1968.

Remarks.--Reservoir is formed by compacted earth-fill dam. Storage began May 3, 1956. Total capacity, 401,600 acre-ft, consisting of the following: dead storage, 2,184 acre-ft below elevation 1,855.5 ft (sill of trashrack); irrigation pool, 64,920 acre-ft between elevations 1,855.5 and 1,889.6 ft; flood control pool, 193,600 acre-ft between elevations 1,889.6 and 1,923.7 ft; and uncontrolled storage, 140,900 acre-ft between elevations 1,923.7 and 1,938.0 ft. Reservoir is used to store water for flood control and irrigation in Webster Unit, Missouri River Basin project. Figures given herein represent elevations.

Capacity table (elevation, in feet, and contents, in acre-feet)

1,860	5,300	1,868	14,900
1,862	7,260	1,870	18,100
1,864	9,480	1,872	21,610
1,866	12,020		

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70.10	69.85	69.75	69.70	69.75	70.10	70.30	70.35	71.85	70.22	63.64	64.79
2	70.10	69.85	69.75	69.70	69.75	70.10	70.30	70.35	71.85	69.95	63.54	64.87
3	70.10	69.82	69.75	69.70	69.75	70.10	70.30	70.35	71.85	69.78	63.43	64.92
4	70.07	69.80	69.75	69.70	69.75	70.12	70.30	70.35	71.85	69.50	63.33	64.93
5	70.05	69.80	69.75	69.70	69.78	60.15	70.30	70.35	71.85	69.31	63.20	64.98
6	70.05	69.80	69.75	69.70	69.80	70.18	70.30	70.32	71.85	69.18	62.99	65.04
7	70.05	69.80	69.75	69.70	69.80	70.20	70.30	70.94	71.81	68.87	62.73	65.09
8	70.05	69.80	69.72	69.70	69.83	70.22	70.30	71.17	71.80	68.58	62.42	65.38
9	70.05	69.80	69.70	69.70	69.85	70.25	70.30	71.29	71.87	68.33	62.47	65.47
10	20.05	69.80	69.70	69.70	69.85	70.28	70.30	71.34	71.95	68.08	62.32	65.54
11	70.03	69.80	69.70	69.70	69.85	70.30	70.30	71.44	71.95	67.87	62.08	65.56
12	70.00	69.80	69.70	69.70	69.88	70.30	70.30	71.48	71.95	67.69	61.86	65.58
13	70.00	69.80	69.70	69.70	69.90	70.30	70.30	71.54	71.93	67.55	61.65	65.60
14	70.00	69.80	69.70	69.70	69.90	70.30	70.30	71.58	71.90	67.42	61.50	65.59
15	70.00	69.80	69.70	69.70	69.92	70.30	70.30	71.63	71.90	67.19	63.95	65.58
16	70.00	69.80	69.70	69.70	69.95	70.30	70.30	71.65	71.90	66.96	64.92	65.76
17	70.00	69.80	69.70	69.70	69.95	70.33	70.30	71.70	71.90	66.71	65.09	65.98
18	69.98	69.80	69.70	69.70	69.95	70.35	70.30	71.75	71.90	66.40	65.13	66.15
19	69.95	69.80	69.70	69.70	69.95	70.35	70.32	71.75	71.90	66.05	65.14	66.21
20	69.95	69.80	69.70	69.70	69.98	70.35	70.35	71.75	71.90	65.75	65.07	66.26
21	69.95	69.80	69.70	69.70	70.00	70.35	70.35	71.70	71.86	65.48	64.95	66.30
22	69.95	69.80	69.70	69.70	70.00	70.35	70.35	71.67	71.72	65.29	64.85	66.33
23	69.95	69.80	69.70	69.70	70.00	70.35	70.35	71.70	71.66	65.13	64.76	66.36
24	69.95	69.80	69.70	69.70	70.00	70.35	70.35	71.70	71.49	64.94	64.65	66.37
25	69.95	69.80	69.70	69.70	70.00	70.35	70.35	71.72	71.33	64.83	64.50	66.38
26	69.92	69.80	69.70	69.70	70.02	70.35	70.35	71.78	71.20	64.49	64.34	66.38
27	69.90	69.80	69.70	69.70	70.05	70.35	70.35	71.80	71.05	64.24	64.12	66.39
28	69.90	69.78	69.70	69.70	70.05	70.35	70.35	71.80	70.88	64.10	64.01	66.38
29	69.90	69.75	69.70	69.70	70.08	70.35	70.35	71.80	70.68	63.92	64.10	66.36
30	69.90	69.75	69.70	69.70	------	70.32	70.35	71.82	70.46	63.85	64.45	66.37
31	69.88	------	69.70	69.73	------	70.30	------	71.85	------	63.75	64.68	------
MAX	70.10	69.85	69.75	69.73	70.08	70.35	70.35	71.85	71.45	70.22	65.14	66.39
MIN	69.88	69.75	69.70	69.70	69.75	70.10	70.30	70.32	70.46	63.75	61.50	64.79
(+)	17,910	17,680	17,600	17,650	18,240	18,610	18,700	21,340	18,880	9,180	10,300	12,530
(≠)	-360	-230	-80	+50	+590	+370	+90	+2,640	-2,460	-9,700	+1,120	+2,230

CAL YR 1967 ..... (≠) -11,990
WTR YR 1968 ..... (≠) -5,740

\+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
≠ CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 1,800 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.

6-8732. South Fork Solomon River below Webster Reservoir, Kans.

Location.--Lat 39°24'40", long 99°25'00", in SW¼ sec. 26, T. 7 S., R. 19 W., 0.4 mile downstream from Webster Dam, 1.1 miles upstream from Sand Creek, 8 miles west of Stockton, Rooks County, and at mile 90.0.

Drainage area.--1,200 sq mi, approximately.

Records available.--October 1956 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,828.50 ft above mean sea level, datum of 1929 (Bureau of Reclamation bench mark). Prior to Apr. 9, 1963, graphic water-stage recorder in two channels 0.2 mile upstream at different datums.

Average discharge.--12 years, 66.4 cfs (48,100 acre-ft per year).

Extremes.--Maximum discharge during year, 272 cfs Aug. 15 (gage height, 3.19 ft); no flow Oct. 22 to June 9.
1956-68: Maximum discharge, 2,070 cfs July 10, 1962; no flow at times in most years.

Remarks.--Records good. Flow regulated by Webster Reservoir (see station 6-8731).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	0	0	0	0	0	0	0	0	196	60	.58
2	.04	0	0	0	0	0	0	0	0	217	55	.31
3	.04	0	0	0	0	0	0	0	0	217	51	.26
4	.04	0	0	0	0	0	0	0	0	212	57	.13
5	.06	0	0	0	0	0	0	0	0	211	68	.12
6	.04	0	0	0	0	0	0	0	0	205	91	.15
7	.04	0	0	0	0	0	0	0	0	200	125	.09
8	.02	0	0	0	0	0	0	0	0	196	151	.09
9	.02	0	0	0	0	0	0	0	0	182	165	.08
10	.02	0	0	0	0	0	0	0	.09	170	162	.08
11	.02	0	0	0	0	0	0	0	.21	158	156	.08
12	.02	0	0	0	0	0	0	0	.09	145	151	.08
13	.02	0	0	0	0	0	0	0	.11	137	136	.06
14	.02	0	0	0	0	0	0	0	.27	135	119	.05
15	.02	0	0	0	0	0	0	0	.30	149	81	.05
16	.02	0	0	0	0	0	0	0	.20	165	53	.27
17	.02	0	0	0	0	0	0	0	.17	179	41	.06
18	.01	0	0	0	0	0	0	0	.16	179	37	.04
19	.01	0	0	0	0	0	0	0	.16	177	34	.04
20	.01	0	0	0	0	0	0	0	.13	175	50	.04
21	.01	0	0	0	0	0	0	0	25	173	60	.04
22	0	0	0	0	0	0	0	0	53	164	55	.04
23	0	0	0	0	0	0	0	0	57	152	55	.05
24	0	0	0	0	0	0	0	0	95	135	54	.02
25	0	0	0	0	0	0	0	0	125	114	71	.03
26	0	0	0	0	0	0	0	0	135	89	88	.02
27	0	0	0	0	0	0	0	0	144	84	106	.02
28	0	0	0	0	0	0	0	0	151	76	105	.01
29	0	0	0	0	0	0	0	0	151	71	74	.01
30	0	0	0	0	------	0	0	0	167	65	27	.01
31	0	------	0	0	------	0	------	0	------	59	1.0	------
TOTAL	0.56	0	0	0	0	0	0	0	1,104.89	4,787	2,539.0	2.91
MEAN	.018	0	0	0	0	0	0	0	36.8	154	81.9	.097
MAX	.06	0	0	0	0	0	0	0	167	217	165	.58
MIN	0	0	0	0	0	0	0	0	0	59	1.0	.01
AC-FT	1.1	0	0	0	0	0	0	0	2,190	9,490	5,040	5.8

CAL YR 1967: TOTAL 7,823.40 MEAN 21.4 MAX 188 MIN 0 AC-FT 15,520
WTR YR 1968: TOTAL 6,434.36 MEAN 23.0 MAX 217 MIN 0 AC-FT 16,730

6-8737. Kill Creek near Bloomington, Kans.

Location.--Lat 39°22'45", long 98°51'33", on west line sec. 11, T. 8 S., R. 14 W., at downstream side county highway bridge, 9 miles southwest of Bloomington, Osborne County, and 9.6 miles upstream from mouth.

Drainage area.--52 sq mi, approximately.

Records available.--April 1963 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 1,670 ft (from topographic map).

Average discharge.--5 years, 1.43 cfs (1,040 acre ft per year).

Extremes.--Maximum discharge during year, 4,370 cfs June 9 (gage height, 18.90 ft), from rating curve extended above 1,000 cfs on basis of slope-area measurement; no flow for many days.
1963-68: Maximum discharge, that of June 9, 1968; no flow most days.

Remarks.--Records fair.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	4.0	0
4	0	0	0	0	0	0	0	0	0	0	.52	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	256	0	0	0
9	0	0	0	0	0	0	0	0	633	0	0	0
10	0	0	0	0	0	0	0	0	64	0	0	0
11	0	0	0	0	0	0	0	0	2.5	0	0	0
12	0	0	0	0	0	0	0	0	.44	0	0	0
13	0	0	0	0	0	0	0	.35	.06	0	0	0
14	0	0	0	0	0	0	0	89	0	0	0	0
15	0	0	0	0	0	0	0	23	0	0	0	0
16	0	0	0	0	0	0	0	7.1	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	38
24	0	0	0	0	0	0	0	0	0	0	0	12
25	0	0	0	0	0	0	0	0	0	0	0	3.7
26	0	0	0	0	0	0	0	0	0	0	0	1.7
27	0	0	0	0	0	0	0	0	0	0	0	.40
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	------	0	0	0	0	0	0	0
31	0	------	0	0	------	0	------	0	------	0	0	------
TOTAL	0	0	0	0	0	0	0	119.45	956.00	0	4.52	55.80
MEAN	0	0	0	0	0	0	0	3.85	31.9	0	.15	1.86
MAX	0	0	0	0	0	0	0	237	1900	0	9.0	111
MIN	0	0	0	0	0	0	0	89	633	0	4.0	38
AC-FT	0	0	0	0	0	0	0	0	0	0	0	0

CAL YR 1967: TOTAL 690.85 MEAN 1.89 MAX 612 MIN 0 AC-FT 1,370
WTR YR 1968: TOTAL 1135.77 MEAN 3.10 MAX 633 MIN 0 AC-FT 2,250

PEAK DISCHARGE (BASE, 300 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
5-14	0800	8.91	324	6-9	0100	18.90	4,370

6-8740. South Fork Solomon River at Osborne, Kans.

Location.--Lat 39°25'43", long 98°41'40", on west line sec. 20, T. 7 S., R. 12 W., on downstream side of bridge on U.S. Highway 281, half a mile south of Osborne, Osborne County, 0.6 mile downstream from Covert Creek, and at mile 26.1.

Drainage area.--2,024 sq mi.

Records available.--March 1946 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,505.09 ft above mean sea level, datum of 1929. Prior to Dec. 12, 1946, wire-weight gage and Dec. 12, 1946 to Oct. 21, 1964 graphic water-stage recorder at same site and datum.

Average discharge.--22 years, 157 cfs (113,700 acre-ft per year).

Extremes.--Maximum discharge during year, 2,360 cfs June 9 (gage height, 14.80 ft); no flow Aug. 8.
1946-68: Maximum discharge, 81,200 cfs July 13, 1951 (gage height, 27.65 ft), from rating curve extended above 16,000 cfs on basis of slope-area and contracted-opening measurement of peak flow; no flow Aug. 21, 1946, Apr. 21, 1948, Aug. 8, 1968.

Remarks.--Records good except those for winter periods, which are poor. Flow regulated by Webster Reservoir (see station 6-8731). Diversions above station for irrigation. Occasional low water regulation by Osborne city reservoir 1.5 miles upstream. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	15	9.2	9.6	18	16	14	9.5	4.2	10	15	34
2	24	16	14	9.4	17	15	14	8.6	4.0	9.7	17	28
3	22	16	14	9.4	17	14	17	6.6	3.5	6.5	18	22
4	20	16	14	9.4	17	14	14	6.2	3.4	3.9	12	21
5	20	16	14	9.4	16	14	14	6.2	3.1	7.8	8.2	19
6	21	16	14	9.8	16	14	14	6.2	2.9	15	3.2	17
7	21	15	14	10	16	14	14	7.0	2.8	11	1.7	17
8	20	16	14	10	16	14	13	6.2	254	13	.30	75
9	19	15	15	10	16	14	13	5.4	1,400	11	.52	30
10	18	15	16	11	16	14	13	7.0	604	4.7	17	24
11	18	14	15	11	16	14	12	9.5	174	43	308	28
12	17	13	15	11	13	14	12	9.9	81	19	130	19
13	16	13	15	11	12	13	13	10	49	11	62	16
14	16	13	15	11	12	14	19	21	28	7.3	37	14
15	18	13	14	12	13	14	16	45	28	3.8	178	13
16	18	13	15	12	13	13	13	11	23	2.2	462	28
17	16	13	17	13	13	13	12	20	19	3.0	386	21
18	15	13	16	13	14	13	9.5	10	17	1.6	126	15
19	14	22	15	14	15	13	13	7.1	14	2.9	74	33
20	14	17	15	14	16	13	16	6.2	12	2.8	52	22
21	14	16	14	21	13	13	15	5.6	13	2.2	39	17
22	13	15	11	20	13	13	23	7.1	12	1.9	29	15
23	13	15	13	19	17	13	22	7.3	10	12	19	38
24	13	15	15	21	16	13	17	7.1	8.7	200	22	62
25	13	14	15	22	16	14	15	8.4	9.2	108	15	25
26	13	14	13	22	15	13	13	7.9	9.2	112	14	17
27	13	14	14	21	16	13	12	7.5	8.3	48	13	13
28	13	14	11	21	16	13	12	6.6	7.8	35	56	12
29	14	14	10	20	14	13	11	4.7	18	27	59	10
30	18	9.5	10	19	------	14	9.9	1.6	16	21	36	10
31	16	------	10	19	------	13	------	4.0	------	19	38	------
TOTAL	526	440.5	426.2	445.0	438	422	425.4	286.4	2,839.1	775.3	2,247.92	715
MEAN	17.0	14.7	13.7	14.4	15.1	13.6	14.2	9.24	94.6	25.0	72.5	23.8
MAX	26	22	17	22	18	16	23	45	1,400	200	462	75
MIN	13	9.5	9.2	9.4	12	13	9.5	1.6	2.8	1.6	.30	10
AC-FT	1,040	874	845	883	869	837	844	568	5,630	1,540	4,460	1,420

CAL YR 1967 TOTAL 13,997.0 MEAN 38.3 MAX 3,280 MIN 3.1 AC-FT 27,760
WTR YR 1968 TOTAL 9,986.82 MEAN 27.3 MAX 1,400 MIN .30 AC-FT 19,810

6-8758. Limestone Creek near Glen Elder, Kans.

Location.--Lat 39°32'18", long 98°18'58", on north line sec. 15, T. 6 S., R. 9 W., 150 ft downstream from highway bridge, 2 miles north of Glen Elder, Mitchell County, and 7.4 miles upstream from mouth.

Drainage area.--210 sq mi.

Records available.--April 1955 to September 1964 (base flow measurements only). October 1964 to September 1968.

Gage.--Digital water-stage recorder. Altitude of gage is 1,417 ft (from topographic map).

Extremes.--Maximum discharge during year, 923 cfs June 9 (gage height, 13.72 ft); no flow many days.
1964-68: Maximum discharge, 1,350 cfs Sept. 30, 1965 (gage height, 16.45 ft); maximum gage height, 16.88 ft Aug. 21, 1966; no flow at times most years.

Remarks.--Records good except those for winter months, which are fair.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.02	.06	0	.05	.14	.02	.10	.11	.06	0	0
2	.10	.04	.08	0	.05	.08	.05	.10	.09	.06	2.0	0
3	.08	.04	.04	0	.05	.06	.11	.10	.05	.01	.88	0
4	.04	.04	.04	0	.05	.06	.06	.09	.02	.01	.63	0
5	.02	.04	.04	0	.05	.10	.05	.10	.01	.03	.28	0
6	.02	.04	.06	0	.05	.14	.05	.16	0	.08	.18	0
7	.02	.04	.04	0	.05	.10	.06	.32	0	.05	.10	0
8	.02	.04	.04	0	.05	.14	.05	.21	23	0	.10	0
9	.02	.04	.08	0	.05	.10	.06	.14	646	0	.07	0
10	0	.04	.14	0	.05	.08	.06	.14	389	0	.14	0
11	0	.04	.08	0	0	.06	.06	.18	78	0	.36	0
12	0	.02	.06	0	0	.03	.04	.19	19	0	.37	0
13	0	.02	.06	0	0	.03	.05	.28	8.8	0	.28	0
14	0	.02	.04	0	0	.08	.07	.29	159	0	.13	0
15	0	.04	.04	0	0	.08	.04	.26	222	0	.15	0
16	0	.04	.06	.05	0	.08	.03	.19	29	0	.07	.20
17	0	.04	.14	.05	0	.07	.02	.15	38	0	.06	135
18	0	.02	.10	.05	0	.09	.03	.13	12	0	.08	27
19	0	.02	.08	.05	0	.04	.12	.09	6.4	0	.18	7.5
20	0	.04	.08	.05	0	.04	.32	.08	3.1	0	20	2.6
21	0	[illegible]	.06	.05	0	.04	.33	.08	4.1	0	7.3	.38
22	0	.04	.02	.05	0	.04	.41	.27	2.7	0	1.9	.30
23	0	.04	.02	.05	.05	.02	.26	.21	.62	0	.37	.30
24	.02	.06	.08	.05	.10	.02	.21	.16	.35	0	.27	.14
25	.04	.04	.10	.05	.18	.01	.20	.14	.32	0	.25	.08
26	.04	.04	.06	.05	.18	.01	.13	.14	.30	0	.13	.10
27	.04	.06	.05	.05	.42	.01	.10	.14	.21	170	.19	.14
28	.02	.06	.05	.05	.34	0	.09	.16	.18	15	.06	.18
29	.02	.06	0	.05	.22	0	.07	.18	.16	2.1	.01	.22
30	.02	.06	0	.05	------	0	.06	.18	.08	.18	.01	.18
31	.02	------	0	.05	------	.03	------	.17	------	.07	0	------
TOTAL	0.64	1.18	1.80	0.80	1.99	1.78	3.21	5.13	1,642.60	187.65	36.55	174.32
MEAN	.021	.039	.058	.026	.069	.057	.11	.17	54.8	6.05	1.18	5.81
MAX	.10	.06	.14	.05	.42	.14	.41	.32	646	170	20	135
MIN	0	.02	0	0	0	0	.02	.08	0	0	0	0
AC-FT	1.3	2.3	3.6	1.6	4.0	3.5	6.4	10	3,260	372	73	346

YR 1967: TOTAL 4,941.41 MEAN 13.5 MAX 814 MIN 0 AC-FT 9,800
YR 1968: TOTAL 2,057.65 MEAN 5.62 MAX 646 MIN 0 AC-FT 4,080

PEAK DISCHARGE (BASE, 650 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
6-09	0945	13.72	923				

6-8759. Solomon River near Glen Elder, Kans.

Location.--Lat 39°28'27", long 98°16'58", on east line sec. 2, T. 7 S., R. 9 W., near right bank, 1.3 miles downstream from Walnut Creek, 2 miles southeast of Glen Elder, Mitchell County, and at mile 152.7.

Drainage area.--5,340 sq mi.

Records available.--October 1964 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,374.13 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation).

Extremes.--Maximum discharge during year, 1,630 cfs Aug. 18 (gage height, 13.93 ft); minimum, 1.3 cfs Oct. 19, 21.
1964-68: Maximum discharge, 6,890 cfs July 30, 1967 (gage height, 26.89 ft); minimum, 0.70 cfs July 17, 18, 1966.

Remarks.--Records good except those for winter periods, which are poor. Flow regulated by Kirwin Reservoir (see station 6-8717), by Webster Reservoir (see station 6-8731) and by Glen Elder Reservoir (under construction). Large diversions below Kirwin and Webster Dams and many small diversions above station for irrigation. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	2.3	46	31	61	81	26	36	34	38	60	312
2	70	2.7	59	31	58	60	27	35	30	27	48	133
3	67	3.3	46	30	63	49	33	32	25	12	43	105
4	64	8.2	42	30	57	46	31	32	22	23	40	75
5	63	8.8	40	30	53	45	28	30	19	24	34	71
6	62	9.7	38	30	50	43	28	29	19	18	22	67
7	61	10	37	31	47	41	29	31	19	33	19	65
8	61	13	37	31	46	43	27	221	27	35	17	63
9	59	18	39	31	46	40	27	427	1,000	16	15	61
10	58	21	41	31	45	40	26	385	1,120	12	15	59
11	57	25	42	31	44	39	24	324	847	12	15	57
12	56	27	41	31	43	39	22	260	688	11	411	54
13	55	28	40	30	37	38	21	206	562	12	793	29
14	55	28	37	30	34	39	25	175	503	13	658	30
15	55	29	36	30	36	38	59	149	840	11	513	29
16	30	29	39	30	40	37	58	128	606	9.2	710	56
17	1.7	30	42	31	42	35	55	116	545	8.4	1,300	163
18	1.5	30	42	32	40	32	44	95	465	7.4	1,570	159
19	1.4	30	42	34	41	34	41	80	344	7.5	1,370	132
20	1.4	31	42	35	47	31	41	66	293	7.0	699	120
21	1.4	32	42	37	40	32	40	58	336	5.8	86	117
22	1.5	33	39	40	39	32	45	62	327	5.2	73	114
23	2.4	35	32	42	41	33	48	69	228	152	66	114
24	3.1	36	36	45	46	34	49	67	126	448	64	144
25	2.6	37	38	47	50	33	58	54	91	392	61	234
26	2.7	36	37	52	51	31	57	55	63	457	59	230
27	2.4	35	38	55	44	31	48	52	47	453	59	177
28	2.4	35	36	56	13	30	46	49	49	195	56	44
29	2.6	36	34	62	58	27	28	45	55	115	59	40
30	2.3	36	33	54	------	28	38	41	49	77	206	33
31	2.2	------	32	59	------	26	------	38	------	90	339	------
TOTAL	976.6	735.0	1,225	1,169	1,312	1,187	1,129	3,447	9,379	2,726.5	9,480	3,087
MEAN	31.5	24.5	39.5	37.7	45.2	38.3	37.6	111	313	88.0	306	103
MAX	72	37	59	62	63	81	59	427	1,120	457	1,570	312
MIN	1.4	2.3	32	30	13	26	21	29	19	5.2	15	29
AC-FT	1,940	1,460	2,430	2,320	2,600	2,350	2,240	6,840	18,600	5,410	18,800	6,120

CAL YR 1967 TOTAL 62,293.6 MEAN 171 MAX 6,420 MIN 1.4 AC-FT 123,600
WTR YR 1968 TOTAL 35,853.1 MEAN 98.0 MAX 1,570 MIN 1.4 AC-FT 71,110

6-8767. Salt Creek near Ada, Kans.

Location.--Lat 39°08'30", long 97°50'10", on west line sec. 36, T. 10 S., R. 5 W., at downstream side of highway bridge, 3 miles southeast of Ada, Ottawa County, and 19.4 miles upstream from mouth.

Drainage area.--384 sq mi, approximately.

Records available.--June 1959 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,247.18 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--9 years, 42.7 cfs (30,910 acre-ft per year).

Extremes.--Maximum discharge during year, 233 cfs June 11 (gage height, 8.64 ft); no flow part of Aug. 26.
1959-68: Maximum discharge, 16,000 cfs May 23, 1961 (gage height, 23.25 ft); no flow at times in 1964, 1966, and 1968.
Maximum stage known since at least 1897, that of May 23, 1961. Flood in 1942 reached a stage of about 21 ft, from information by local residents.

Remarks.--Records good except those for winter periods, which are fair.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	2.0	4.0	2.9	7.5	3.7	2.9	3.5	2.9	.44	.39	8.1
2	7.0	2.6	4.0	2.1	5.5	3.9	3.1	3.4	2.5	.26	.59	6.0
3	5.0	3.2	4.0	2.0	4.6	4.1	3.9	3.2	2.4	.27	.64	3.3
4	4.0	3.2	4.8	2.0	3.8	4.4	4.0	3.0	2.0	.38	.70	2.5
5	3.5	3.4	5.2	1.9	3.3	4.4	3.5	2.8	1.9	.98	2.5	1.8
6	3.3	3.4	6.0	1.9	3.1	4.4	3.3	2.9	1.8	1.6	2.6	1.4
7	3.2	3.4	5.2	1.9	2.8	4.4	3.4	3.1	1.8	1.9	1.5	1.1
8	3.2	3.6	5.0	1.9	2.8	4.5	3.6	2.8	1.6	1.3	.95	.97
9	3.1	3.0	4.8	1.9	3.1	4.4	3.7	2.9	1.5	101	.58	.69
10	3.1	2.7	5.0	1.9	3.1	5.0	3.6	2.9	2.5	16	.37	.63
11	3.0	3.0	5.0	1.9	3.0	4.8	3.3	3.0	71	6.1	4.5	.57
12	3.0	3.0	5.0	1.9	3.0	4.6	3.0	2.9	147	2.5	44	1.5
13	2.9	3.0	5.0	1.9	3.0	4.3	2.8	3.0	29	2.2	42	1.4
14	2.8	3.6	5.0	1.9	2.9	4.1	2.8	3.2	14	1.6	11	1.1
15	2.8	3.2	4.8	1.9	2.7	3.9	2.8	3.2	31	6.1	5.1	.89
16	2.8	3.0	4.8	2.0	2.5	3.7	2.8	3.1	31	5.0	3.1	1.3
17	2.8	3.0	5.0	2.0	2.7	3.7	3.1	14	9.8	2.5	2.3	1.7
18	2.7	3.2	5.8	2.1	2.7	3.6	3.2	11	5.3	1.6	1.7	1.7
19	2.6	3.4	5.5	2.3	2.8	3.4	3.6	6.6	3.3	4.0	1.4	1.6
20	2.5	3.4	5.8	2.5	2.7	3.4	5.3	4.5	2.5	2.9	1.1	1.5
21	2.4	3.2	5.8	3.0	2.6	3.4	5.9	3.4	4.0	1.6	.74	2.4
22	2.3	3.6	5.2	4.0	2.8	3.4	18	3.4	6.3	.90	.51	1.9
23	2.3	3.6	4.1	4.9	2.9	3.2	23	25	3.2	.64	.27	1.6
24	2.2	3.6	3.8	6.0	2.9	3.2	22	47	2.1	.54	.28	74
25	2.0	3.6	3.5	8.0	3.0	3.0	13	19	1.5	.48	.19	107
26	2.6	3.8	3.9	10	3.1	2.9	7.6	14	1.2	.54	.12	17
27	3.2	3.8	3.6	9.3	3.4	2.9	5.4	8.9	.90	.45	3.3	6.4
28	2.9	3.6	3.6	8.7	3.5	3.0	4.6	6.0	.85	.38	63	3.3
29	3.2	3.6	3.5	8.8	3.7	3.1	4.1	4.7	.69	.39	15	2.2
30	2.2	3.8	3.6	8.7	------	3.1	3.6	4.1	.58	.40	7.2	1.5
31	1.9	------	3.2	8.0	------	3.1	------	3.4	------	.39	15	------
TOTAL	100.5	98.5	143.5	120.2	95.5	117.0	174.9	223.9	386.12	165.34	232.63	257.05
MEAN	3.24	3.28	4.63	3.88	3.29	3.77	5.83	7.22	12.9	5.33	7.50	8.57
MAX	10	3.8	6.0	10	7.5	5.0	23	47	147	101	63	107
MIN	1.9	2.0	3.2	1.9	2.5	2.9	2.8	2.8	.58	.26	.12	.57
AC-FT	199	195	285	238	189	232	347	444	766	328	461	510

CAL YR 1967 TOTAL 20,871.60 MEAN 57.2 MAX 3,190 MIN .29 AC-FT 41,400
WTR YR 1968 TOTAL 2,115.14 MEAN 5.78 MAX 147 MIN .12 AC-FT 4,200

PEAK DISCHARGE (BASE, 580 CFS).--NO PEAK ABOVE BASE.

6-8769. Solomon River at Niles, Kans.

Location.--Lat 38°58'08", long 97°28'34", in NW¼ sec. 31, T. 12 S., R. 1 W., at downstream side of county highway bridge, three-quarters of a mile west of Niles, Ottawa County, and at mile 16.9.

Drainage area.--6,770 sq mi, approximately.

Records available.--May 1897 to November 1903, October 1917 to September 1968. Published as "near Bennington" October 1917 to May 1919. Monthly discharge only for some periods, published in WSP 1310.

Gage.--Digital water-stage recorder. Datum of gage is 1,160.97 ft above mean sea level, datum of 1929. Prior to Nov. 30, 1903, wire-weight gage at present site and at different datum. Oct. 1, 1917 to May 31, 1919, staff gage near Bennington, 27 miles upstream at different datum. June 1, 1919 to Sept. 30, 1922, chain gage at present site at datum 2 ft higher. Oct. 1, 1922 to Apr. 25, 1934, chain gage and Apr. 26, 1934 to Mar. 21, 1963, graphic water-stage recorder at present site and datum.

Average discharge.--57 years, 583 cfs (422,100 acre-ft per year).

Extremes.--Maximum discharge during year, 3,660 cfs June 12 (gage height, 18.10 ft); minimum, 24 cfs July 25.
1897-1903, 1917-68: Maximum discharge, 178,000 cfs July 14, 1951 (gage height, 31.76 ft); minimum observed, 1 cfs Sept. 4, 1926.

Remarks.--Records good except those for winter months, which are poor. Flow regulated by Kirwin Reservoir (see station 6-8717) and by Webster Reservoir (see station 6-8731). Some diurnal fluctuation caused by power plants above station. Many small diversions upstream for irrigation. Records of chemical analyses, water temperatures and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	329	113	116	95	133	101	85	101	95	92	196	253
2	288	116	116	95	118	100	83	94	90	83	158	214
3	261	123	117	90	130	98	142	90	85	79	112	306
4	242	128	114	90	118	96	206	85	85	75	117	352
5	224	116	114	90	114	103	129	78	81	69	97	662
6	215	113	119	90	113	130	109	78	77	66	86	637
7	1,070	111	131	90	113	119	97	80	74	58	71	231
8	1,310	110	125	90	112	112	95	80	70	54	64	151
9	513	110	121	90	107	108	84	78	69	49	61	154
10	331	109	119	90	103	111	80	77	69	48	54	200
11	249	109	118	90	100	112	80	78	1,930	103	59	173
12	223	109	119	90	98	100	80	203	3,500	63	1,140	125
13	208	106	119	95	96	95	80	353	2,820	51	552	110
14	197	105	119	95	94	98	103	338	1,160	57	238	102
15	193	105	116	100	94	98	114	306	764	48	172	97
16	203	105	118	100	90	98	85	515	705	38	629	96
17	188	105	121	109	91	97	119	366	642	35	649	97
18	181	107	130	110	95	97	94	225	790	35	545	110
19	174	109	128	113	95	96	85	180	678	34	638	219
20	168	109	124	115	91	94	282	160	569	33	1,100	160
21	155	109	123	119	89	92	200	144	487	27	1,360	198
22	136	109	120	118	92	91	141	152	365	28	1,250	198
23	126	109	115	113	97	88	140	184	315	30	751	172
24	122	109	110	111	90	88	217	214	281	27	272	162
25	120	111	107	110	95	88	172	283	303	26	144	596
26	118	112	100	113	102	88	128	197	260	30	116	431
27	116	112	100	116	105	88	114	150	201	113	99	266
28	116	112	100	121	99	88	106	140	153	300	104	231
29	114	113	100	129	98	87	101	130	126	401	817	265
30	114	115	95	124	------	88	103	115	106	399	833	259
31	113	------	95	129	------	85	------	105	------	322	412	------
TOTAL	8,117	3,329	3,569	3,230	2,972	3,034	3,654	5,379	16,950	2,873	12,896	7,227
MEAN	262	111	115	104	102	97.9	122	174	565	92.7	416	241
MAX	1,310	128	131	129	133	130	282	515	3,500	401	1,360	662
MIN	113	105	95	90	89	85	80	77	69	26	54	96
AC-FT	16,100	6,600	7,080	6,410	5,890	6,020	7,250	10,670	33,620	5,700	25,580	14,330

CAL YR 1967: TOTAL 193,424 MEAN 530 MAX 9,810 MIN 35 AC-FT 383,700
WTR YR 1968: TOTAL 73,230 MEAN 200 MAX 3,500 MIN 26 AC-FT 145,200

6-8776. Smoky Hill River at Enterprise, Kans.

Location.--Lat 38°54'24", long 97°07'12", in NW¼SE¼ sec. 20, T. 13 S., R. 3 E., at upstream side of bridge on State Highway 43 in Enterprise, Dickinson County, 18.6 miles upstream from Chapman Creek and at mile 55.4.

Drainage area.--19,200 sq mi, approximately.

Records available.--October 1934 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,103.25 ft above mean sea level, datum of 1929. Nov. 1, 1934 to Jan. 28, 1935, wire-weight gage and Jan. 29, 1935 to May 3, 1959, graphic water-stage recorder at site 0.2 mile downstream at datum 5.40 ft lower. May 4, 1959 to Apr. 21, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--34 years, 1,632 cfs (1,182,000 acre-ft per year).

Extremes.--Maximum discharge during year, 3,760 cfs June 13 (gage height, 7.89 ft); minimum, 64 cfs July 24.
1934-68: Maximum discharge, 233,000 cfs July 14, 1951 (gage height, 33.96 ft, site and datum then in use, or 29.0 ft, present site and datum), from rating curve extended above 55,000 cfs on basis of slope-area measurement of peak flow; minimum, about 10 cfs Apr. 23, 1935 (regulated by powerplant then in operation).
Flood in May 1903 reached a stage of about 27 ft, present site and datum, from information by Corps of Engineers (discharge, 90,000 cfs).

Remarks.--Records excellent. Natural flow of stream affected by Cedar Bluff, Kanopolis, Wilson, Kirwin and Webster Reservoirs (see elsewhere in this report), and by numerous diversions for irrigation above station. Records of chemical analyses, water temperatures and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,410	610	424	285	440	300	275	312	336	270	384	780
2	2,070	650	432	354	440	312	275	306	306	242	392	600
3	1,860	710	440	318	424	392	354	280	295	222	360	408
4	1,750	768	432	336	424	348	690	275	300	218	285	384
5	1,630	768	432	354	416	342	972	265	290	210	295	432
6	1,540	670	424	306	400	324	700	265	260	190	290	732
7	1,560	620	424	306	384	348	464	285	246	190	238	756
8	1,900	590	424	318	376	360	368	290	238	190	202	392
9	2,500	570	424	330	376	342	318	324	242	170	178	280
10	3,500	570	424	306	368	330	295	300	360	166	170	246
11	2,000	690	416	312	376	324	275	280	416	170	162	260
12	1,590	1,040	416	312	336	318	265	255	2,310	190	170	270
13	1,540	1,070	416	306	342	312	265	348	3,590	190	1,060	230
14	1,570	1,070	416	318	336	300	306	690	2,560	174	610	206
15	1,860	1,060	400	318	336	300	424	650	1,320	174	318	198
16	2,470	816	376	312	342	300	512	570	1,630	150	255	190
17	2,050	590	392	312	348	300	690	732	1,560	138	580	190
18	1,600	530	448	318	348	300	560	610	1,310	138	700	186
19	1,150	504	448	342	348	300	432	448	1,260	138	620	186
20	948	496	560	392	348	300	864	376	1,030	127	680	275
21	876	480	530	440	348	295	1,150	348	864	115	1,140	285
22	828	472	472	456	342	290	840	1,240	744	121	1,320	260
23	732	464	440	472	336	285	550	1,850	640	109	1,180	285
24	720	464	424	472	336	285	480	1,380	610	77	780	260
25	680	464	424	472	342	285	472	900	630	86	368	246
26	680	448	424	456	348	285	448	780	600	150	255	530
27	660	448	432	456	376	290	360	620	520	109	202	670
28	640	432	424	456	376	290	336	488	432	162	222	1,010
29	630	424	400	456	330	285	318	432	342	392	255	1,240
30	620	424	400	440	------	285	312	384	290	512	948	1,660
31	590	------	318	440	------	275	------	348	------	512	948	------
TOTAL	45,154	18,912	13,256	11,471	10,642	9,602	14,570	16,631	25,531	6,002	15,567	13,647
MEAN	1,457	630	428	370	367	310	486	536	851	194	502	455
MAX	3,500	1,070	560	472	440	392	1,150	1,850	3,590	512	1,320	1,660
MIN	590	424	318	285	330	275	265	255	238	77	162	186
AC-FT	89,560	37,510	26,290	22,750	21,110	19,050	28,900	32,990	50,640	11,900	30,880	27,070

CAL YR 1967: TOTAL 557,690 MEAN 1,528 MAX 22,700 MIN 58 AC-FT 1,106,000
WTR YR 1968: TOTAL 200,985 MEAN 549 MAX 3,590 MIN 77 AC-FT 398,600

6-8780. Chapman Creek near Chapman, Kans.

Location.--Lat 39°01'52", long 97°02'24", on south line sec. 1, T. 12 S., R. 3 E., at downstream side of bridge on State Highway 18, 5 miles northwest of Chapman, Dickinson County, and 6 miles upstream from mouth.

Drainage area.--300 sq mi.

Records available.--December 1953 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,102.41 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 5, 1959, wire-weight gage and May 5, 1959 to Mar. 31, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--14 years (1954-68), 67.3 cfs (48,720 acre-ft per year).

Extremes.--Maximum discharge during year, 3,720 cfs Oct. 7 (gage height, 21.38 ft); minimum, 4.4 cfs, Sept. 13-17.
1953-68: Maximum discharge, 12,200 cfs July 3, 1958 (gage height, 23.65 ft); minimum observed, 0.1 cfs Oct. 10, 1956.
Flood in July 1951 reached a stage of 25.5 ft, from floodmarks (discharge, 46,700 cfs, from rating curve extended above 12,000 cfs on basis of contracted-opening measurement of peak flow).

Remarks.--Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	37	28	22	33	25	18	26	19	10	9.3	17
2	16	43	29	19	30	22	19	24	18	9.0	117	11
3	14	56	28	18	28	26	30	24	17	8.1	41	9.8
4	12	91	28	18	26	24	280	22	16	8.5	27	7.9
5	11	69	27	17	26	21	84	21	15	8.2	15	42
6	172	45	26	17	26	22	32	23	14	11	9.5	39
7	,230	40	26	16	26	24	25	25	13	9.9	7.8	14
8	2,630	39	27	16	24	24	23	24	12	9.1	6.9	9.5
9	379	38	27	16	23	24	21	26	13	8.7	6.6	7.9
10	122	36	27	16	23	24	19	25	19	8.8	9.0	6.9
11	72	38	27	17	24	25	18	23	62	8.2	7.9	6.6
12	58	39	28	18	21	23	18	22	31	7.3	24	5.4
13	51	37	29	19	19	21	18	23	19	6.4	18	4.8
14	43	35	27	19	19	20	20	40	16	6.6	10	4.4
15	46	34	25	20	23	20	25	82	19	6.3	8.7	4.4
16	39	33	23	21	22	21	156	48	50	6.6	7.3	4.4
17	51	33	24	21	21	21	519	24	44	12	7.3	4.8
18	37	32	33	23	20	22	49	20	32	9.1	9.8	5.2
19	31	32	53	26	22	22	45	18	25	8.4	8.5	5.8
20	30	31	34	30	24	20	706	18	18	7.5	6.9	6.4
21	28	30	27	40	26	19	470	17	14	6.7	6.1	5.8
22	29	30	23	69	22	19	81	21	13	6.7	6.0	5.4
23	30	30	19	67	22	19	57	27	12	7.5	5.4	8.4
24	31	30	20	52	23	19	45	55	11	18	5.4	9.9
25	31	29	19	41	25	20	36	41	11	9.9	5.7	10
26	38	29	20	39	27	21	32	25	11	8.5	5.7	8.4
27	36	28	19	41	33	22	31	22	11	9.9	5.8	9.3
28	32	26	21	43	36	22	30	22	10	10	6.1	7.0
29	29	26	19	40	31	22	28	21	10	9.6	27	5.8
30	30	27	21	42	------	20	27	20	9.9	8.5	27	5.5
31	32	------	21	36	------	19	------	19	------	8.5	22	------
TOTAL	7,409	1,123	805	899	725	673	2,962	848	584.9	273.5	479.7	292.7
MEAN	239	37.4	26.0	29.0	25.0	21.7	98.7	27.4	19.5	8.82	15.5	9.76
MAX	3,230	91	53	69	36	26	706	82	62	18	117	42
MIN	11	26	19	16	19	19	18	17	9.9	6.3	5.4	4.4
AC-FT	14,700	2,230	1,600	1,780	1,440	1,330	5,880	1,680	1,160	542	951	581

CAL YR 1967 TOTAL 46,629.8 MEAN 128 MAX 3,790 MIN 5.9 AC-FT 92,490
WTR YR 1968 TOTAL 17,074.8 MEAN 46.7 MAX 3,230 MIN 4.4 AC-FT 33,870

PEAK DISCHARGE (BASE, 1,200 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	1500	21.38	3,720				

6-8785. Lyon Creek near Woodbine, Kans.

Location.-- Lat 38°53'05", long 96°54'35", on north line sec. 31, T. 13 S., R. 5 E., at downstream side of highway bridge, 2 miles downstream from Cary Creek, 7 miles north of Woodbine, Geary County, and 10 miles upstream from mouth.

Drainage area.--230 sq mi.

Records available.--December 1953 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,109.79 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 8, 1959, wire-weight gage and May 8, 1959 to Jan. 29, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--14 years (1954-68), 89.9 cfs (65,080 acre-ft per year).

Extremes.--Maximum discharge during year, 34,400 cfs Oct. 7 (gage height, 31.44 ft) from rating curve extended above 20,000 cfs on basis of slope-area measurements; minimum, 5.2 cfs Sept. 30.
1953-68: Maximum discharge, that of Oct. 7, 1967; no flow at times in 1953-57.
Flood in July 1951 reached a stage of about 34.8 ft from floodmarks (discharge, 93,000 cfs, from slope-area measurement).

Remarks.--Records good. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	89	46	41	39	31	30	30	61	21	13	15
2	50	95	51	41	39	30	26	29	48	19	36	13
3	47	148	47	35	33	30	119	29	41	16	66	11
4	41	144	44	34	34	30	139	28	41	16	32	11
5	37	86	53	35	35	30	42	27	38	16	19	11
6	478	72	47	34	31	30	24	31	34	16	15	12
7	17,200	66	42	34	31	31	20	47	32	16	12	11
8	1,420	67	42	31	31	32	21	50	34	16	11	10
9	366	72	41	29	31	41	18	35	38	15	12	8.7
10	224	72	45	31	31	33	16	29	81	14	21	8.4
11	166	72	43	32	31	28	16	26	571	15	31	7.8
12	143	62	42	34	31	26	15	26	168	14	24	7.8
13	124	60	42	34	30	25	15	29	75	12	19	7.8
14	104	60	39	33	29	25	83	54	53	12	16	7.5
15	1,030	61	36	33	29	30	53	35	274	11	14	7.2
16	532	61	36	33	29	33	21	28	520	11	13	7.2
17	173	65	41	85	29	27	239	25	155	16	21	7.2
18	126	59	69	56	29	27	83	24	80	18	20	7.5
19	109	56	60	103	29	37	47	22	54	15	20	7.8
20	100	60	56	92	30	32	150	22	41	14	17	7.8
21	89	64	54	78	30	27	104	22	35	12	14	7.8
22	88	57	52	74	30	26	58	502	31	11	11	7.2
23	100	53	40	61	30	26	52	606	26	11	10	12
24	94	52	37	52	32	26	40	370	24	14	11	12
25	83	51	39	46	33	27	36	135	24	19	11	9.4
26	76	48	40	44	37	28	36	171	23	23	11	8.7
27	76	45	45	44	35	29	35	108	22	36	9.4	7.2
28	73	44	45	42	34	31	33	78	20	20	9.8	6.0
29	80	45	42	42	31	29	32	65	20	15	12	5.8
30	79	52	42	39	------	26	31	55	19	13	16	5.4
31	79	------	42	38	------	46	------	58	------	13	17	------
TOTAL	23,441	2,038	1,400	1,390	923	929	1,634	2,796	2,683	490	564.2	268.2
MEAN	756	67.9	45.2	44.8	31.8	30.0	54.5	90.2	89.4	15.8	18.2	8.94
MAX	17,200	148	69	103	39	46	239	606	571	36	66	15
MIN	37	44	36	29	29	25	15	22	19	11	9.4	5.4
AC-FT	46,490	4,040	2,780	2,760	1,830	1,840	3,240	5,550	5,320	972	1,120	532

CAL YR 1967 TOTAL 58,853.0 MEAN 161 MAX 17,200 MIN 4.6 AC-FT 116,700
WTR YR 1968 TOTAL 38,556.4 MEAN 105 MAX 17,200 MIN 5.4 AC-FT 76,480

PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	0500	31.44	34,400	10-15	1800	15.49	2,220

6-8791. Kansas River at Fort Riley, Kans.

Location.--Lat 39°03'09", long 97°46'33", NE¼SW¼NW¼ sec. 33, T. 11 S., R. 6 E., at downstream side of military highway bridge 1.6 miles below the confluence of Republican and Smoky Hill Rivers, Geary County, and at mile 173.6.

Drainage area.--44,910 sq mi, approximately, of which a large area is noncontributing.

Records available.--December 1963 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,034.69 ft above mean sea level, datum of 1929. Prior to Apr. 2, 1964, graphic water-stage recorder at same site and datum.

Extremes.--Maximum discharge during year, 29,900 cfs Oct. 7 (gage height, 18.31); minimum daily, 191 cfs July 26.
1963-68: Maximum discharge, that of Oct. 7, 1967; minimum, 100 cfs Dec. 24, 1966.
Flood in July 1951 reached a stage of 34.5 ft, from information by Corps of Engineers.

Remarks.--Records good. Natural flow of stream affected by reservoirs in Colorado, Nebraska, and Kansas, and by numerous diversions for irrigation above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4,230	3,740	774	582	800	759	1,500	1,050	676	504	612	2,040
2	3,870	3,760	766	560	796	732	1,500	968	596	474	900	1,900
3	3,640	3,780	759	587	794	719	1,560	729	531	445	892	1,430
4	3,470	3,950	731	616	779	776	1,610	674	491	420	676	1,210
5	3,330	3,950	721	702	772	762	1,980	644	467	420	996	1,150
6	3,310	3,870	715	600	768	732	2,090	653	438	420	1,490	1,190
7	17,500	3,560	689	540	758	536	1,880	673	534	380	1,490	1,400
8	23,500	2,760	683	560	748	518	1,770	641	1,280	370	1,500	1,700
9	11,200	2,680	681	580	739	528	2,120	719	1,300	355	1,440	1,170
10	6,700	2,640	673	580	732	520	1,980	1,130	1,340	335	1,450	1,020
11	4,690	2,600	654	580	725	514	1,140	1,110	1,510	320	1,410	979
12	4,140	2,690	648	520	724	501	1,050	1,080	1,620	320	1,400	955
13	3,840	2,710	642	470	713	495	1,030	1,080	3,250	310	1,410	999
14	3,640	1,980	636	480	700	481	1,040	1,190	4,940	315	2,070	1,020
15	3,840	1,940	622	490	695	473	1,070	1,710	3,780	282	1,880	1,270
16	5,210	1,900	609	520	754	580	1,130	1,740	3,360	278	1,440	1,030
17	4,350	1,680	603	540	769	594	1,510	1,680	3,520	370	1,520	906
18	3,840	1,500	628	560	764	589	2,320	1,760	3,160	273	1,720	924
19	3,440	1,440	635	600	772	594	1,810	1,650	2,930	251	1,910	1,000
20	2,760	1,390	640	696	777	588	1,690	1,640	2,790	251	1,870	967
21	1,980	1,370	712	720	780	584	2,780	1,830	2,620	231	1,560	1,030
22	1,840	1,340	791	746	772	596	2,590	2,200	2,490	219	1,990	1,380
23	2,580	1,300	750	756	764	1,180	2,120	3,760	2,370	219	2,070	1,300
24	3,660	1,270	726	753	748	2,480	1,840	4,010	1,890	296	1,420	1,210
25	1,710	1,260	701	740	748	2,550	1,590	3,190	1,280	211	1,460	1,100
26	1,580	1,230	696	724	756	2,560	1,270	2,670	1,250	191	1,340	1,070
27	2,350	1,090	696	712	757	2,580	1,220	2,580	1,120	239	1,120	1,280
28	3,680	823	698	708	783	2,430	1,140	2,360	788	223	1,010	1,430
29	3,660	798	695	734	786	1,810	1,090	2,190	668	211	1,270	2,060
30	3,640	788	686	803	------	1,570	1,060	2,100	566	400	1,440	2,150
31	3,640	------	693	809	------	1,540	------	1,570	------	538	1,910	------
TOTAL	150,820	65,789	21,353	19,568	21,973	31,871	48,480	50,981	53,555	10,071	44,666	38,270
MEAN	4,865	2,193	689	631	758	1,028	1,616	1,645	1,785	325	1,441	1,276
MAX	23,500	3,950	791	809	800	2,580	2,780	4,010	4,940	538	2,070	2,150
MIN	1,580	788	603	470	695	473	1,030	641	438	191	612	906
AC-FT	299,100	130,500	42,350	38,810	43,580	63,220	96,160	101,100	106,200	19,980	88,590	75,910

CAL YR 1967: TOTAL 953,058 MEAN 2,611 MAX 25,500 MIN 170 AC-FT 1,890,000
WTR YR 1968: TOTAL 557,397 MEAN 1,523 MAX 23,500 MIN 191 AC-FT 1,106,000

6-8842. Mill Creek at Washington, Kans.

Location.--Lat 39°48'50", long 97°02'20", on south line sec. 1, T. 3 S., R. 3 E., at downstream side of bridge on U.S. Highway 36, 0.5 mile east of Washington, Washington County, and about 26 miles upstream from mouth.

Drainage area.--344 sq mi.

Records available.--October 1959 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,261.56 ft above mean sea level, datum of 1929. Prior to Apr. 30, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--9 years, 77.4 cfs (56,040 acre-ft per year).

Extremes.--Maximum discharge during year, 4,390 cfs Aug. 11 (gage height, 20.84 ft); minimum, 0.50 cfs July 16, 17.
1959-68: Maximum discharge, 10,700 cfs June 16, 1967 (gage height, 26.34 ft); no flow at times in 1963-66.
Maximum stages known since at least 1903, about 36 ft June 8, 1941, about 34 ft in 1903, 1908, from information by local residents and newspaper files.

Remarks.--Records good except those for periods of backwater from beaver dams and those for winter months, which are poor. Diversions above station for irrigation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	9.0	9.5	6.6	13	14	7.6	18	17	2.6	116	33
2	10	9.0	9.5	6.6	14	15	9.0	17	14	2.0	832	25
3	8.3	9.0	9.5	6.4	15	27	302	16	11	1.4	880	20
4	7.0	9.0	9.5	6.4	15	11	164	15	9.5	1.0	340	36
5	72	9.0	9.5	6.2	15	9.5	42	14	8.0	1.0	47	246
6	108	9.0	9.5	6.0	14	9.0	22	14	7.6	1.8	24	79
7	153	9.0	9.5	5.5	13	9.0	16	15	7.6	1.6	16	31
8	140	9.0	9.5	5.5	11	9.0	14	15	7.2	12	12	21
9	52	9.0	9.5	6.0	12	10	12	15	6.0	9.0	8.5	17
10	23	9.0	9.5	6.5	10	13	11	15	7.2	11	972	15
11	13	9.0	9.5	6.5	10	12	10	15	336	19	3,230	13
12	10	9.0	9.5	6.0	9.0	11	10	14	144	16	2,250	12
13	8.1	9.0	9.5	6.0	9.0	9.5	12	16	40	9.0	142	12
14	9.2	9.0	9.5	6.0	9.0	8.5	12	95	23	3.6	84	12
15	68	9.0	9.5	6.0	9.0	7.2	14	62	356	2.2	80	14
16	130	9.0	9.5	6.5	8.5	7.2	16	26	87	1.0	342	19
17	60	9.0	9.5	7.0	8.8	7.2	15	18	28	.70	120	593
18	22	9.0	9.5	8.0	8.8	7.6	14	15	17	.95	50	791
19	12	9.0	9.5	8.9	9.0	7.6	14	13	30	23	35	115
20	9.5	9.0	9.5	9.5	10	7.2	96	12	14	12	570	48
21	7.4	9.2	9.5	12	9.0	7.2	94	12	11	4.8	201	29
22	7.3	9.5	9.5	15	8.5	7.2	81	14	7.6	2.6	69	23
23	9.3	9.5	9.5	17	8.5	6.8	90	18	6.0	.95	42	19
24	12	9.5	8.3	19	8.5	6.8	47	18	4.8	16	29	18
25	9.4	9.5	8.3	14	9.0	7.2	28	17	4.4	99	24	17
26	8.3	9.5	7.6	12	10	7.2	23	16	4.0	55	21	21
27	7.3	9.5	7.3	16	10	7.2	20	16	3.6	22	19	18
28	7.5	9.5	7.0	14	11	7.6	169	15	3.4	70	18	15
29	7.8	9.5	6.8	14	12	8.0	37	14	3.0	68	20	13
30	8.9	9.5	6.8	14	------	8.5	21	14	2.8	53	29	13
31	9.0	------	6.6	13	------	8.0	------	17	------	311	29	------
TOTAL	1,022.3	274.7	277.2	292.1	309.6	293.2	1,422.6	611	1,220.7	833.20	10,651.5	2,338
MEAN	33.0	9.16	8.94	9.42	10.7	9.46	47.4	19.7	40.7	26.9	344	77.9
MAX	153	9.5	9.5	19	15	27	302	95	356	311	3,230	791
MIN	7.0	9.0	6.6	5.5	8.5	6.8	7.6	12	2.8	.70	8.5	12
AC-FT	2,030	545	550	579	614	582	2,820	1,210	2,420	1,650	21,130	4,640

CAL YR 1967 TOTAL 32,941.30 MEAN 90.3 MAX 6,610 MIN .70 AC-FT 65,340
WTR YR 1968 TOTAL 19,546.10 MEAN 53.4 MAX 3,230 MIN .70 AC-FT 38,770

PEAK DISCHARGE (BASE, 1,200 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8-02	1400	15.02	1,830	8-11	2300	20.84	4,390

NOTE: BACKWATER FROM BEAVER DAM OCT. 31 TO DEC. 22.

6-8844. Little Blue River near Barnes, Kans.

Location.--Lat 39°46'40", long 96°51'40", on west line sec. 22, T. 3 S., R. 5 E., at downstream side of bridge on State Highway 15 E., 0.4 mile downstream from Malone Creek, 4.5 miles north of Barnes, Washington County, and 18 miles upstream from mouth.

Drainage area.--3,330 sq mi, approximately.

Records available.--April 1958 to September 1968. Published as "at Waterville" April 1958 to September 1960; those prior to April 1958 collected at site 11.5 miles downstream and are considered not equivalent.

Gage.--Digital water-stage recorder. Datum of gage is 1,140.06 ft above mean sea level (levels by Corps of Engineers). Prior to Dec. 20, 1960, graphic water-stage recorder at same site and datum.

Average discharge.--10 years, 580 cfs (419,900 acre-ft per year).

Extremes.--Maximum discharge during year, 8,790 cfs Aug. 19 (gage height, 14.16 ft); minimum daily, 52 cfs July 23.
1958-68: Maximum discharge, 38,800 cfs Mar. 29, 1960 (gage height, 23.90 ft); minimum, 22 cfs Aug. 6, 1964.

Remarks.--Records good except those for winter months, which are poor. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	232	133	154	80	276	181	135	192	160	553	981	290
2	192	138	157	80	251	181	136	180	158	412	1,670	253
3	165	143	154	80	240	179	176	172	145	319	1,680	225
4	147	146	152	75	240	172	528	157	137	273	1,290	258
5	825	143	152	70	224	176	333	149	130	265	639	298
6	874	139	152	70	218	174	205	150	123	245	288	581
7	1,560	141	152	85	206	169	174	164	120	255	218	346
8	1,130	140	149	95	203	167	159	168	119	208	195	240
9	666	138	152	100	194	170	148	166	118	173	163	185
10	407	138	154	100	193	170	143	289	212	155	882	158
11	294	138	157	95	184	169	137	249	373	145	3,900	140
12	236	141	163	85	170	164	133	215	752	121	4,340	130
13	205	141	157	85	159	158	141	196	740	120	2,740	120
14	183	141	152	90	134	156	158	248	395	115	994	108
15	217	143	152	110	105	157	169	294	255	98	769	100
16	199	141	146	120	168	157	161	239	412	81	846	118
17	254	141	146	125	163	153	162	196	255	83	2,710	3,290
18	213	142	166	130	170	151	154	176	215	83	1,340	4,940
19	169	141	175	140	175	152	154	165	183	75	4,190	2,600
20	151	141	170	150	180	152	365	157	158	81	3,660	1,260
21	121	144	167	155	175	152	325	152	150	90	2,170	841
22	148	146	127	160	170	147	345	158	130	75	1,310	605
23	127	146	115	165	175	146	336	163	118	62	605	461
24	148	149	110	180	180	146	289	168	108	188	409	1,480
25	130	151	105	200	185	150	258	171	103	423	316	2,080
26	132	151	105	230	198	146	231	174	103	384	263	1,090
27	130	149	100	250	190	146	212	174	832	300	235	706
28	126	143	95	270	185	146	200	170	2,570	253	303	489
29	129	146	90	280	185	144	303	157	1,670	233	273	364
30	130	152	85	290	------	141	228	150	846	238	293	290
31	130	------	80	292	------	141	------	158	------	319	308	------
TOTAL	9,770	4,286	4,291	4,437	5,496	4,913	6,599	5,717	11,790	6,429	39,980	24,046
MEAN	315	143	138	143	190	158	220	184	393	207	1,290	802
MAX	1,560	152	175	292	276	181	528	294	2,570	553	4,340	4,940
MIN	121	133	80	70	105	141	133	149	103	62	163	100
AC-FT	19,380	8,500	8,510	8,800	10,900	9,740	13,090	11,340	23,390	12,750	79,300	47,690

CAL YR 1967: TOTAL 191,325 MEAN 524 MAX 11,700 MIN 50 AC-FT 379,500
WTR YR 1968: TOTAL 127,754 MEAN 349 MAX 4,940 MIN 62 AC-FT 253,400

PEAK DISCHARGE (BASE, 4,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8-11	0400	10.57	4,900	9-18	0100	12.13	6,460
8-19	2200	14.16	8,790				

6-8855. Black Vermillion River near Frankfort, Kans.

Location.--Lat 39°40'50", long 96°26'40", on south line sec. 20, T. 4 S., R. 9 E., on right bank at downstream side of highway bridge, a quarter of a mile downstream from Vermillion Creek and 2.2 miles southwest of Frankfort, Marshall County.

Drainage area.--412 sq mi.

Records available.--October 1953 to September 1968. Monthly discharge only for October to December 1953, published in WSP 1730.

Gage.--Digital water-stage recorder. Datum of gage is 1,106.91 ft above mean sea level, datum of 1929. Prior to May 13, 1954, wire-weight gage and May 13, 1954 to Apr. 30, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--15 years, 118 cfs (85,430 acre-ft per year).

Extremes.--Maximum discharge during year, 4,890 cfs June 11 (gage height, 23.99 ft); minimum, 3.2 cfs July 22.
1953-68: Maximum discharge, 38,300 cfs May 30, 1959 (gage height, 29.40 ft); no flow at times in 1955-57.
Flood of Aug. 3, 1948, reached a stage of 30.2 ft, present site and datum, from floodmarks. Flood in June 1951 reached a stage of 28.6 ft, present site and datum, from floodmarks (discharge, 30,400 cfs, based on contracted-opening measurement of peak flow).

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	19	15	10	33	19	9.3	11	18	7.5	958	64
2	6.4	22	14	9.0	32	17	9.7	11	17	6.9	1,650	34
3	5.9	32	14	9.0	25	17	25	9.8	12	6.5	2,060	22
4	5.6	33	14	8.0	23	15	68	9.3	9.7	6.3	168	15
5	19	23	15	8.0	21	15	26	9.1	8.8	6.3	59	13
6	599	19	14	7.4	20	15	19	9.3	7.9	10	37	12
7	2,190	18	14	7.4	17	15	17	11	7.4	9.0	26	11
8	701	17	14	7.4	16	16	14	16	7.1	6.6	22	10
9	98	17	14	7.2	17	16	13	14	6.9	5.9	434	9.0
10	45	16	16	6.9	16	16	12	11	612	5.5	693	8.0
11	31	17	15	6.9	16	14	12	10	4,110	5.3	812	7.0
12	24	17	17	7.4	15	13	11	10	1,150	5.1	99	6.8
13	21	15	15	7.9	15	12	12	12	72	4.8	52	6.8
14	19	14	16	8.6	13	12	13	37	326	4.6	42	6.5
15	36	14	13	9.3	14	13	14	84	100	4.5	38	6.2
16	64	15	12	10	14	13	13	25	40	36	34	6.3
17	24	14	15	11	17	13	13	14	31	74	30	6.5
18	18	15	18	11	15	13	13	10	31	10	38	7.0
19	15	15	18	12	15	13	12	9.0	125	6.4	37	7.8
20	13	14	17	20	16	12	15	8.3	29	4.6	32	7.7
21	13	14	16	78	21	11	15	8.2	19	3.7	23	6.9
22	13	14	14	294	15	10	15	9.2	15	3.4	20	6.9
23	13	14	13	227	14	9.9	14	11	13	7.9	19	10
24	12	14	12	170	14	10	13	13	10	748	22	41
25	11	14	12	130	15	11	16	14	9.7	716	22	14
26	12	14	13	100	17	12	15	35	9.9	127	21	8.5
27	11	13	13	70	20	11	13	20	10	959	20	6.5
28	12	12	12	60	20	11	13	19	9.5	223	19	5.9
29	13	12	11	50	24	11	12	13	9.0	32	20	5.1
30	16	15	11	43	------	10	11	11	8.2	319	20	4.5
31	16	------	10	37	------	9.4	------	11	------	1,320	169	------
TOTAL	4,083.7	502	439	1,443.4	530	405.3	478.0	495.2	6,834.1	4,684.8	7,696	375.4
MEAN	132	16.7	14.2	46.6	18.3	13.1	15.9	16.0	228	151	248	12.5
MAX	2,190	33	18	294	33	19	68	84	4,110	1,320	2,060	64
MIN	5.6	12	10	6.9	13	9.4	9.3	8.2	6.9	3.4	19	4.5
AC-FT	8,100	996	871	2,860	1,050	804	948	982	13,560	9,290	15,260	745

CAL YR 1967 : TOTAL 52,132.7 MEAN 143 MAX 13,100 MIN 3.2 AC-FT 103,400
WTR YR 1968 : TOTAL 27,966.9 MEAN 76.4 MAX 4,110 MIN 3.4 AC-FT 55,470

PEAK DISCHARGE (BASE, 1,800 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	1500	18.96	2,690	8-02	2100	20.75	3,300
6-11	1700	23.99	4,890				

6-8865. Fancy Creek at Winkler, Kans.

Location.--Lat 39°28'20", long 96°49'55", in SE¼ sec. 2, T. 7 S., R. 5 E., at downstream side of county highway bridge, 0.2 mile downstream from Otter Creek and 0.4 mile south of Winkler, Riley County, and 5.0 miles northwest of Randolph.

Drainage area.--176 sq mi.

Records available.--December 1953 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,101.17 ft above mean sea level (levels by Corps of Engineers). Prior to May 5, 1954, wire-weight gage and May 5, 1954 to Dec. 19, 1962, graphic water-stage recorder, at site 100 ft downstream at same datum. Dec. 20, 1962 to Mar. 4, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--14 years (1954-68), 40.8 cfs (29,540 acre-ft per year).

Extremes.--Maximum discharge during year, 7,740 cfs July 24 (gage height, 17.12 ft); minimum, 1.4 cfs Jan. 7 (result of freezup).
1953-68: Maximum discharge, 19,600 cfs Sept. 5, 1958 (gage height, 21.80 ft); no flow at times in most years.
Maximum stage known since at least 1915, 22.3 ft in August 1944, from floodmark. Flood in July 1951 reached a stage of 21.0 ft, from floodmark.

Remarks.--Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	12	13	13	14	8.5	5.7	7.4	82	13	143	30
2	6.0	14	13	12	13	8.5	5.3	6.7	21	13	1,780	23
3	5.3	16	12	11	12	8.5	9.2	6.4	14	13	350	20
4	5.0	22	12	11	12	7.8	9.5	6.0	12	13	104	31
5	4.6	18	12	11	12	7.4	9.2	5.3	11	13	74	27
6	150	14	13	11	11	7.8	8.1	5.0	8.8	14	61	21
7	1,890	13	13	5.7	11	8.1	7.1	7.1	8.5	15	53	19
8	148	12	13	9.2	11	8.1	6.0	7.1	8.1	14	48	18
9	48	12	13	9.9	10	8.1	5.7	7.1	7.8	13	49	17
10	28	13	13	10	10	7.8	5.0	7.1	471	12	2,680	17
11	22	13	13	9.9	9.9	7.8	5.0	6.7	85	12	482	16
12	19	13	13	10	9.9	7.4	4.3	6.0	31	11	126	15
13	17	12	13	10	9.5	7.1	4.3	6.4	25	11	89	15
14	15	12	13	10	9.2	6.7	5.7	67	23	9.9	74	15
15	15	12	12	10	8.5	7.4	5.3	40	22	9.2	77	14
16	14	12	12	10	8.8	8.5	4.1	15	22	8.5	65	15
17	13	12	13	10	9.2	8.5	3.6	10	22	8.5	55	16
18	13	12	14	11	9.2	8.5	12	8.5	21	11	85	18
19	12	12	15	11	8.8	8.8	9.9	7.1	435	11	64	16
20	12	12	14	12	8.8	8.8	35	6.7	51	9.2	43	14
21	12	12	14	14	8.8	8.5	38	6.4	29	8.5	36	14
22	12	12	13	15	8.8	8.1	17	7.8	24	8.5	33	14
23	11	14	12	19	8.5	7.4	12	9.9	21	8.5	28	75
24	11	13	12	17	8.5	7.4	10	10	19	2,500	30	31
25	11	13	12	15	9.2	7.4	8.8	11	18	78	26	20
26	13	12	13	14	9.2	7.4	8.5	11	17	414	25	16
27	12	12	13	14	9.2	7.4	8.5	9.9	17	3,490	25	14
28	11	12	14	14	9.9	6.7	8.8	9.2	16	207	28	14
29	11	12	13	14	9.2	6.7	8.1	8.1	15	85	26	14
30	11	12	13	14	------	6.4	7.8	7.1	14	382	31	14
31	11	------	13	13	------	6.4	------	212	------	602	74	------
TOTAL	2,569.6	392	401	370.7	289.1	239.9	287.5	541.0	1,571.2	8,017.8	6,864	603
MEAN	82.9	13.1	12.9	12.0	9.97	7.74	9.58	17.5	52.4	259	221	20.1
MAX	1,890	22	15	19	14	8.8	38	212	471	3,490	2,680	75
MIN	4.6	12	12	5.7	8.5	6.4	3.6	5.0	7.8	8.5	25	14
AC-FT	5,100	778	795	735	573	476	570	1,070	3,120	15,900	13,610	1,200

CAL YR 1967 TOTAL 13,534.57 MEAN 37.1 MAX 1,890 MIN .16 AC-FT 26,850
WTR YR 1968 TOTAL 22,146.8 MEAN 60.5 MAX 3,490 MIN 3.6 AC-FT 43,930

PEAK DISCHARGE (BASE, 1,200 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	0400	14.10	5,570	7-27	1100	13.92	5,440
6-10	1900	11.19	3,700	8-2	1200	11.96	4,170
6-19	0600	7.74	1,760	8-10	1700	16.49	7,240
7-24	0800	17.12	7,740				

6-8869. Tuttle Creek Reservoir near Randolph, Kans.

Location.--Lat 39°15'16", long 96°36'08", in NW¼NE¼SW¼ sec. 24, T. 9 S., R. 7 E., on Big Blue River, near right end of dam, 5 miles north of Manhattan, in Pottawatomie County. Prior to July 1, 1968, at site 14.1 miles upstream.

Drainage area.--9,560 sq mi, approximately.

Records available.--March to April 1960, March 1962 to September 1968.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes.--Maximum elevation during year, 1,085.97 ft Aug. 13, 14 (contents, 620,100 acre-ft); minimum, 1,073.32 ft July 23 (contents, 399,200 acre-feet).
1960, 1962-68: Maximum elevation, 1,094.28 ft July 6, 7, 1965 (contents, 802,100 acre-ft); minimum since conservation pool was first filled, 1,060.82 ft Jan. 4, 1967 (contents, 231,000 acre-ft).

Remarks.--Reservoir is formed by compacted earth fill dam. Storage began Mar. 15, 1962. Total capacity, 3,227,000 acre-ft, consisting of the following: sedimentation, 233,000 acre-ft below elevation 1,061.0 ft; conservation pool, 192,300 acre-ft between elevations 1,061.0 and 1,075.0 ft; flood control pool, 1,942,000 acre-ft between elevations 1,075.0 and 1,136.0 ft; and surcharge pool, 860,300 acre-ft between elevations 1,136.0 and 1,150.0 ft. Reservoir is used to store water for flood control.

Capacity table (elevation, in feet, and contents, in acre-feet)

1,070	350,100	1,085	601,100
1,075	425,300	1,090	704,000
1,080	508,900		

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78.97	80.94	79.99	77.30	76.07	75.45	75.90	76.50	75.64	75.32	77.85	84.05
2	78.99	80.98	79.83	77.30	76.10	75.37	75.85	76.39	75.49	75.34	80.04	83.88
3	79.06	81.02	79.76	77.33	76.11	75.36	75.85	76.28	75.31	75.32	81.35	83.81
4	79.09	81.08	79.65	77.28	76.10	75.36	75.86	76.13	75.14	75.28	81.65	83.64
5	79.13	81.14	79.53	77.19	76.10	75.34	76.00	76.04	74.96	75.27	81.86	83.51
6	79.87	81.20	79.36	77.10	76.03	75.34	76.07	75.95	74.78	75.22	82.06	83.50
7	80.92	81.28	79.30	77.08	76.03	75.44	76.07	75.72	74.59	75.11	82.18	83.35
8	81.47	81.31	79.19	77.00	76.03	75.45	76.11	75.52	74.48	75.04	82.26	83.38
9	81.63	81.37	79.06	76.93	76.02	75.50	76.16	75.38	74.40	74.88	82.53	83.16
10	81.77	81.39	78.94	76.88	75.97	75.52	76.19	75.30	75.25	74.70	84.15	82.97
11	81.86	81.46	78.83	76.82	75.96	75.51	76.24	75.25	75.90	74.50	84.98	82.87
12	81.98	81.49	78.70	76.74	75.88	75.60	76.25	75.21	76.20	74.30	85.68	82.67
13	81.99	81.51	78.59	76.69	75.87	75.70	76.28	75.22	76.22	74.10	85.97	82.51
14	81.86	81.58	78.48	76.64	75.83	75.70	76.32	75.29	76.16	73.90	85.79	82.32
15	81.77	81.63	78.45	76.57	75.82	75.73	76.39	75.30	76.06	73.75	85.61	82.12
16	81.79	81.68	78.47	76.53	75.78	75.80	76.40	75.35	75.95	73.61	85.44	82.02
17	81.84	81.66	78.37	76.48	75.72	75.88	76.35	75.39	75.82	73.71	85.36	81.90
18	81.89	81.55	78.35	76.40	75.73	75.88	76.51	75.33	75.71	73.70	85.45	82.43
19	81.92	81.44	78.31	76.37	75.70	75.83	76.70	75.38	75.73	73.66	85.33	82.84
20	81.91	81.30	78.20	76.31	75.62	75.84	76.70	75.40	75.61	73.60	85.63	82.73
21	81.73	81.17	78.06	76.28	75.61	75.92	76.80	75.41	75.41	73.54	85.23	82.44
22	81.52	81.09	77.96	76.23	75.60	75.94	76.75	75.47	75.31	73.47	84.58	82.37
23	81.45	80.95	77.91	76.19	75.58	76.02	76.77	75.45	75.26	73.75	84.37	82.25
24	81.31	80.85	77.84	76.19	75.57	76.09	76.77	75.50	75.16	75.25	84.47	82.48
25	81.08	80.73	77.78	76.16	75.54	76.13	76.70	75.55	74.95	75.58	84.54	82.82
26	80.77	80.59	77.73	76.11	75.53	76.19	76.71	75.62	74.92	76.00	84.46	82.82
27	80.70	80.46	77.66	76.07	75.52	76.21	76.67	75.69	74.92	76.72	84.41	82.73
28	80.79	80.36	77.57	76.10	75.39	76.23	76.64	75.73	75.03	76.89	84.29	82.63
29	80.76	80.23	77.54	76.04	75.45	76.20	76.60	75.77	75.18	77.02	84.23	82.53
30	80.80	80.15	77.45	76.05	------	76.10	76.54	75.80	75.21	77.12	84.21	82.30
31	80.88	------	77.43	76.10	------	75.97	------	75.78	------	77.40	84.15	------
MAX	81.99	81.68	79.99	77.33	76.11	76.23	76.80	76.50	76.22	77.40	85.97	84.05
MIN	78.97	80.15	77.43	76.04	75.39	75.34	75.85	75.21	74.40	73.47	77.85	81.90
(+)	524,600	511,600	464,800	442,900	432,500	440,800	450,100	437,700	428,600	464,300	584,800	550,300
(±)	+35,300	-13,000	-46,800	-21,900	-10,400	+8,300	+9,300	-12,400	-9,100	+35,700	+120,500	-34,500

CAL YR 1967 ..... (±) +233,200
WTR YR 1968 ..... (±) +61,000

+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
± CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 1,000 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.

6-8870. Big Blue River near Manhattan, Kans.

Location.--Lat 39°14'14", long 96°34'16", in S½ of sec. 30, T. 9 S., R. 8 E., at downstream side of highway bridge, 4 miles north of Manhattan, Riley County, and 7.3 miles upstream from mouth.

Drainage area.--9,560 sq mi, approximately.

Records available.--May to July 1951 (published in WSP 1139), October 1954 to September 1968. Records for April 1895 to October 1905, published in previous Annual Reports and Water-Supply Papers, have been found to be unreliable and should not be used.

Gage.--Digital water-stage recorder. Datum of gage is 991.86 ft above mean sea level, datum of 1929. May 1 to July 31, 1951, wire-weight gage above power dam 1 mile upstream at datum 5.34 ft higher. Oct. 1 to Nov. 17, 1954, wire-weight gage and Nov. 18, 1954 to Sept. 30, 1961, graphic water-stage recorder at present site and datum.

Average discharge.--14 years (1954-68), 1,655 cfs (1,198,000 acre-ft per year).

Extremes.--Maximum discharge during year, 12,900 cfs Aug. 21 (gage height, 13.28 ft); minimum daily, 22 cfs Nov.14-16.
1951, 1954-68: Maximum discharge, 93,400 cfs July 12, 1951 (gage height, 33.04 ft, present site and datum, from floodmarks), from rating curve extended above 35,000 cfs on basis of slope-area measurement of peak flow; minimum daily, 11 cfs Aug. 4, 1966.
Flood of May 31, 1903, reached a stage of 35.85 ft, from floodmarks and information by local resident. Flood in June 1941 reached a stage of about 34.1 ft, from floodmarks and information by local resident.

Remarks.--Records good. Flow regulated by Tuttle Creek Reservoir (Sta. no. 6-8869). Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	45	1,580	912	646	629	1,180	1,000	1,830	1,460	186	2,140
2	70	42	1,570	915	644	630	1,200	1,080	1,840	1,460	481	2,140
3	70	39	1,560	912	650	629	750	1,260	1,840	1,560	234	2,130
4	60	34	1,570	913	644	633	91	1,470	1,840	1,710	204	2,120
5	60	31	1,560	915	645	636	85	1,470	1,880	1,710	198	2,100
6	60	28	1,560	914	640	513	87	1,730	1,930	1,710	195	2,100
7	55	26	1,550	921	633	63	84	2,030	1,930	1,710	195	2,110
8	55	24	1,560	920	635	53	85	2,020	1,390	1,700	333	2,100
9	50	24	1,560	912	637	52	84	1,620	960	1,710	580	2,100
10	50	23	1,560	912	643	52	87	986	627	1,600	600	2,090
11	50	24	1,550	913	640	53	84	987	52	1,700	590	2,090
12	50	23	1,540	910	640	50	85	984	832	1,700	1,940	2,090
13	445	23	1,540	907	631	49	87	1,010	1,850	1,700	5,020	2,090
14	1,400	22	1,220	906	630	50	88	684	1,900	1,690	5,060	2,080
15	1,410	22	918	906	632	50	83	251	1,890	1,700	5,070	2,080
16	739	22	920	911	636	50	88	247	1,860	1,090	5,070	2,070
17	96	171	919	926	635	51	90	245	1,850	436	5,050	2,070
18	80	1,210	921	919	636	51	84	245	1,850	356	5,060	2,070
19	39	1,560	918	920	642	50	87	241	1,850	188	5,050	2,080
20	311	1,590	921	920	643	49	86	244	1,840	288	8,800	2,080
21	1,980	1,590	918	920	631	47	86	288	1,830	507	12,900	2,090
22	2,010	1,590	917	922	631	49	270	524	1,320	698	11,000	2,090
23	945	1,590	918	913	635	47	985	549	905	815	4,650	2,100
24	666	1,580	918	914	635	48	997	364	906	1,150	598	2,080
25	2,360	1,580	913	920	636	49	1,010	58	903	193	622	2,070
26	2,360	1,580	912	920	636	50	1,000	45	894	204	1,370	2,070
27	1,230	1,420	918	918	636	48	1,000	42	893	214	1,670	2,070
28	38	1,570	918	920	638	105	999	43	1,030	235	1,840	2,070
29	418	1,580	918	844	627	582	1,000	136	1,470	440	2,150	2,070
30	123	1,580	921	649	------	1,190	1,000	463	1,470	1,130	2,150	2,080
31	67	------	914	650	------	1,190	------	856	------	659	2,130	------
TOTAL	17,417	20,643	37,082	27,774	18,487	7,798	12,942	23,172	43,462	33,423	90,996	62,720
MEAN	562	688	1,196	896	637	252	431	747	1,449	1,078	2,935	2,091
MAX	2,360	1,590	1,580	926	650	1,190	1,200	2,030	1,930	1,710	12,900	2,140
MIN	38	22	912	649	627	47	83	42	52	188	186	2,070
AC-FT	34,550	40,940	73,550	55,090	36,670	15,470	25,670	45,960	86,210	66,290	180,500	124,400

CAL YR 1967: TOTAL 545,150 MEAN 1,494 MAX 23,900 MIN 22 AC-FT 1,081,000
WTR YR 1968: TOTAL 395,916 MEAN 1,082 MAX 12,900 MIN 22 AC-FT 785,300

6-8875. Kansas River at Wamego, Kans.

Location.--Lat 39°11'52", long 96°18'16", at center sec. 9, T. 10 S., R. 10 E., at downstream side of bridge on State Highway 99 at Wamego, 3 miles downstream from Antelope Creek, Pottawatomie County, and at mile 129.1.

Drainage area.--55,240 sq mi, approximately, of which a large area is probably noncontributing.

Records available.--January 1919 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 950.82 ft above mean sea level, datum of 1929. Prior to Aug. 1, 1934, chain gage and Aug. 1, 1934 to Sept. 30, 1955, graphic water-stage recorder, at same site at datum 3 ft higher. Oct. 1, 1955 to Nov. 27, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--49 years, 4,700 cfs (3,403,000 acre-ft per year).

Extremes.--Maximum discharge during year, 36,900 cfs Oct. 8 (gage height, 14.27 ft); minimum daily, 629 cfs Mar. 16.
1919-68: Maximum discharge, 400,000 cfs July 13, 1951 (gage height, 30.56 ft, present datum), from rating curve extended above 170,000 cfs on basis of slope-area measurement of peak flow and flood routing studies; minimum, 73 cfs Dec. 14, 1940.
Flood in May 1903 reached a stage of 29.3 ft, present datum, determined by U.S. Weather Bureau, from floodmarks.

Remarks.--Records good. Natural flow of stream affected by reservoirs in Colorado, Nebraska, and Kansas, and by numerous small diversions for irrigation above station. Records of chemical analyses, water temperatures and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4,460	3,610	2,880	2,460	1,730	1,600	2,810	2,250	3,370	2,270	1,200	4,740
2	4,010	3,670	2,860	2,400	1,690	1,590	2,850	2,230	3,030	2,200	3,000	4,870
3	3,670	3,720	2,850	1,950	1,690	1,560	3,010	2,270	2,940	2,150	5,540	4,710
4	3,430	3,840	2,840	2,000	1,680	1,570	2,140	2,240	2,840	2,280	2,080	4,320
5	3,280	3,950	2,830	2,100	1,650	1,620	1,840	2,310	2,800	2,330	1,410	3,990
6	3,490	3,930	2,830	2,000	1,640	1,620	2,120	2,320	2,820	2,360	1,300	3,930
7	13,200	3,850	2,810	1,900	1,620	1,330	2,190	2,880	2,810	2,370	1,680	3,980
8	34,000	3,620	2,800	1,900	1,600	823	1,990	2,920	2,830	2,300	1,680	4,190
9	20,500	3,060	2,780	2,000	1,580	728	1,880	2,850	2,790	2,320	1,890	4,480
10	10,500	2,990	2,810	2,000	1,560	726	2,170	2,190	2,810	2,280	2,630	4,060
11	6,620	2,960	2,780	2,000	1,550	694	2,020	2,310	2,220	2,150	2,280	3,820
12	4,920	2,960	2,770	1,900	1,530	681	1,290	2,310	2,140	2,210	2,140	3,780
13	4,270	3,030	2,750	1,900	1,530	695	1,170	2,300	3,660	2,200	5,030	3,760
14	4,970	3,050	2,720	1,800	1,510	667	2,020	2,510	5,860	2,180	6,130	3,770
15	5,250	2,540	2,280	1,800	1,490	659	1,600	2,060	7,140	2,190	6,780	3,770
16	6,790	2,470	2,160	1,800	1,470	629	1,570	2,170	6,270	2,160	6,610	4,000
17	5,570	2,410	2,220	1,900	1,500	699	2,700	2,170	6,230	1,390	6,280	3,890
18	4,410	2,570	2,240	1,900	1,520	776	2,290	2,090	6,090	1,260	6,940	3,670
19	3,910	3,260	2,270	1,900	1,530	764	2,700	2,140	5,730	1,030	6,690	3,660
20	3,520	3,370	2,280	2,000	1,550	734	2,300	2,070	5,240	763	7,340	3,720
21	3,980	3,380	2,300	2,000	1,550	729	2,100	2,020	5,020	827	15,000	3,730
22	4,280	3,360	2,350	2,000	1,590	718	2,940	2,470	4,670	1,010	15,000	3,750
23	3,990	3,350	2,460	2,100	1,560	724	3,240	3,180	3,700	1,220	10,400	4,260
24	3,070	3,330	2,430	2,100	1,550	1,130	3,210	4,950	3,460	3,630	4,850	4,380
25	5,300	3,330	2,390	2,070	1,570	2,340	2,980	4,480	3,030	1,910	2,690	3,980
26	4,510	3,310	2,360	1,960	1,570	2,550	2,770	3,510	2,460	1,330	3,040	3,820
27	4,210	3,280	2,380	1,920	1,570	2,590	2,480	3,170	2,410	1,050	3,530	3,760
28	2,870	3,030	2,380	1,890	1,570	2,630	2,420	3,080	2,330	802	3,400	3,930
29	3,580	2,940	2,380	1,870	1,610	2,630	2,330	2,850	2,240	739	3,720	4,090
30	3,930	2,880	2,380	1,780	------	2,750	2,290	2,910	2,350	1,070	4,100	4,640
31	3,580	------	2,440	1,730	------	2,830	------	3,060	------	1,650	4,300	------
TOTAL	194,070	97,050	79,010	61,030	45,760	41,786	69,420	82,270	111,290	55,631	148,660	121,450
MEAN	6,260	3,235	2,549	1,969	1,578	1,348	2,314	2,654	3,710	1,795	4,795	4,048
MAX	34,000	3,950	2,880	2,460	1,730	2,830	3,240	4,950	7,140	3,630	15,000	4,870
MIN	2,870	2,410	2,160	1,730	1,470	629	1,170	2,020	2,140	739	1,200	3,660
AC-FT	384,900	192,500	156,700	121,100	90,760	82,880	137,700	163,200	220,700	110,300	294,900	240,900

CAL YR 1967: TOTAL 1,602,070 MEAN 4,389 MAX 41,600 MIN 242 AC-FT 3,178,000
WTR YR 1968: TOTAL 1,107,427 MEAN 3,026 MAX 34,000 MIN 629 AC-FT 2,197,000

6-8880. Vermillion Creek near Wamego, Kans.

Location.--Lat 39°21'00", long 96°13'10", in NW¼ sec. 20, T. 8 S., R. 11 E., at downstream side of highway bridge, 1 mile upstream from Indian Creek, 14 miles northeast of Wamego, Pottawatomie County, and at mile 19.3.

Drainage area.--243 sq mi.

Records available.--April 1936 to June 1946, January 1954 to September 1968. Prior to October 1937, published as Red Vermillion Creek near Wamego.

Gage.--Digital water-stage recorder. Datum of gage is 992.20 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Dec. 3, 1956, wire-weight gage and Dec. 3, 1956 to Sept. 30, 1960 graphic water-stage recorder at same site and datum.

Average discharge.--23 years (1936-45, 1954-68), 86.5 cfs (62,620 acre-ft per year).

Extremes.--Maximum discharge during year, 5,220 cfs Aug. 10 (gage height, 26.65 ft); minimum, 2.5 cfs July 23.
1936-46, 1954-68: Maximum discharge, 23,500 cfs Oct. 9, 1941 (gage height, 29.40 ft), from rating curve extended above 4,000 cfs on basis of velocity-area study; no flow at times in 1937, 1939-40, 1955-57.
Maximum stage known since at least 1873, 30.9 ft in 1915, from floodmark and information by local resident (discharge, 38,500 cfs, from rating curve extended above 4,000 cfs on basis of velocity-area study).
Flood of July 13, 1951 reached a stage of 29.7 ft, from floodmarks.

Remarks.--Records good. Probable diversions for irrigation above station. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	35	27	20	51	23	15	21	51	5.4	719	122
2	8.1	42	27	20	38	26	15	20	47	5.0	1,990	72
3	7.7	69	25	19	43	23	30	19	24	4.5	3,290	59
4	7.2	63	23	18	40	22	72	18	20	4.2	403	257
5	60	42	23	17	37	22	31	17	17	4.0	284	111
6	84	36	23	18	35	23	22	17	16	7.7	230	73
7	1,400	33	24	14	32	23	19	25	16	4.9	193	67
8	233	32	23	13	28	23	19	40	15	4.1	166	62
9	88	33	23	15	30	23	17	32	14	31	2,110	55
10	56	33	25	16	32	23	17	23	14	7.8	4,170	51
11	45	33	29	18	26	21	17	21	110	4.5	3,460	50
12	40	32	29	17	31	20	17	21	80	3.8	486	49
13	36	30	25	17	31	19	17	29	26	3.4	346	46
14	32	30	22	17	29	18	17	220	19	3.2	270	44
15	80	30	17	18	26	19	18	78	16	3.0	229	42
16	102	29	20	18	27	19	20	40	18	16	200	44
17	53	29	23	19	27	19	24	30	19	35	180	52
18	39	28	34	35	31	19	20	26	15	13	190	56
19	34	27	39	78	27	20	19	24	13	6.4	185	67
20	33	27	33	76	28	19	20	23	12	4.3	145	52
21	31	27	28	124	28	18	21	22	10	3.5	121	44
22	30	27	22	185	26	17	21	30	9.3	3.0	109	42
23	28	27	26	132	23	17	33	37	8.3	6.7	101	62
24	28	27	21	84	23	17	29	34	7.7	1,700	107	199
25	25	27	23	70	25	18	26	29	8.1	427	102	52
26	26	25	28	68	28	18	24	46	7.7	726	87	34
27	28	24	24	66	31	19	23	41	7.6	848	82	30
28	28	22	23	61	32	18	23	29	7.5	188	81	27
29	28	22	23	65	24	17	23	24	7.1	52	94	25
30	29	26	23	52	------	16	22	22	6.3	459	150	24
31	28	------	21	51	------	16	------	27	------	1,390	425	------
TOTAL	2,755.6	967	776	1,441	889	615	701	1,085	630.6	5,974.4	20,705	1,970
MEAN	88.9	32.2	25.0	46.5	30.7	19.8	23.4	35.0	21.0	193	668	65.7
MAX	1,400	69	39	185	51	26	72	220	110	1,700	4,170	257
MIN	7.2	22	17	13	23	16	15	17	6.3	3.0	81	24
AC-FT	5,470	1,920	1,540	2,860	1,760	1,220	1,390	2,150	1,250	11,850	41,070	3,910

CAL YR 1967 TOTAL 38,106.6 MEAN 104 MAX 5,010 MIN 2.5 AC-FT 75,580
WTR YR 1968 TOTAL 38,509.6 MEAN 105 MAX 4,170 MIN 3.0 AC-FT 76,380

PEAK DISCHARGE (BASE, 1,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	0400	21.24	2,500	7-31	1200	20.63	1,850
7-24	0700	24.71	3,430	8-03	1000	25.85	4,350
7-26	1000	19.37	1,520	8-10	2000	26.65	5,220

6-8885. Mill Creek near Paxico, Kans.

Location.--Lat 39°03'15", long 96°10'52", in SW¼ sec. 27, T. 11 S., R. 11 E., at downstream side of bridge on Interstate Highway 70, 1 mile southwest of Paxico, Wabaunsee County, 2.0 miles downstream from Kuenzli Creek, and 16 miles upstream from mouth.

Drainage area.--316 sq mi.

Records available.--December 1953 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 965.09 ft above mean sea level, datum of 1929. Prior to Apr. 15, 1958, wire-weight gage and Apr. 15, 1958 to Apr. 1, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--14 years (1954-68), 134 cfs (97,010 acre-ft per year).

Extremes.--Maximum discharge during year, 15,200 cfs Aug. 2 (gage height, 26.13 ft); minimum, 15 cfs July 23.
1953-68: Maximum discharge, 19,100 cfs May 22, 1961 (gage height, 26.03 ft); no flow at times.
Maximum stage known, 34.7 ft July 12, 1951, from floodmarks (discharge, 77,200 cfs, from contracted-opening measurement of peak flow).

Remarks.--Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	187	92	120	137	59	38	102	70	32	125	72
2	66	174	93	118	123	57	40	98	65	30	8,700	66
3	59	373	93	117	105	56	52	92	59	29	2,870	61
4	55	258	90	112	96	54	52	87	55	29	610	128
5	53	213	88	108	94	54	50	84	51	29	405	85
6	193	196	88	103	86	54	46	83	48	29	312	72
7	10,100	183	85	101	88	53	44	92	44	29	259	64
8	1,720	173	84	105	85	53	43	90	41	25	226	57
9	614	164	85	101	84	53	43	82	41	155	230	52
10	422	160	95	97	83	51	41	79	44	39	354	49
11	345	155	94	96	82	50	40	78	165	27	242	47
12	298	145	93	96	80	47	39	77	109	23	199	45
13	256	138	87	91	78	47	40	74	74	20	182	43
14	221	135	83	94	74	46	179	74	98	20	168	41
15	1,450	132	80	93	74	45	74	72	172	19	166	39
16	559	129	80	92	74	46	72	65	392	20	149	38
17	365	125	86	100	72	46	266	61	164	22	132	38
18	300	119	141	310	68	45	95	58	118	25	127	38
19	262	115	189	230	68	46	101	55	93	29	121	37
20	238	114	136	157	68	44	118	53	82	22	108	34
21	216	113	130	136	68	43	100	52	67	19	98	33
22	203	109	122	12	66	42	179	63	60	17	91	32
23	183	108	113	110	65	42	179	190	53	16	83	50
24	176	106	117	103	65	42	149	112	49	2,900	94	89
25	163	103	129	100	65	42	136	108	48	292	89	61
26	162	100	126	99	65	42	132	143	45	1,690	75	48
27	163	95	126	95	64	42	122	101	42	208	70	42
28	153	93	126	92	62	40	116	86	39	169	69	36
29	150	93	122	91	60	41	110	77	35	112	71	33
30	144	93	121	89	------	41	106	72	35	92	78	31
31	139	------	122	88	------	39	------	72	------	116	79	------
TOTAL	19,502	4,401	3,316	3,567	2,299	1,462	2,802	2,632	2,458	6,284	16,582	1,561
MEAN	629	147	107	115	79.3	47.2	93.4	84.9	81.9	203	535	52.0
MAX	10,100	373	189	310	137	59	266	190	392	2,900	8,700	128
MIN	53	93	80	88	60	39	38	52	35	16	69	31
AC-FT	38,680	8,730	6,580	7,080	4,560	2,900	5,560	5,220	4,880	12,460	32,890	3,100

CAL YR 1967: TOTAL 91,820.4 MEAN 252 MAX 13,400 MIN 1.6 AC-FT 182,100
WTR YR 1968: TOTAL 66,866 MEAN 183 MAX 10,100 MIN 16 AC-FT 132,600

PEAK DISCHARGE (BASE, 2,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-07	1100	23.71	13,100	7-26	0800	12.29	4,800
10-15	1200	11.14	3,910	8-02	1800	26.13	15,200
07-24	1400	17.18	8,230				

6-8890. Kansas River at Topeka, Kans.

Location.--Lat 39°04'00", long 95°38'58", in SW¼NW¼ sec. 28, T. 11 S., R. 16 E., near right bank at downstream side of Sardou Bridge in Topeka, Shawnee County, 2.3 miles upstream from Soldier Creek (diversion channel) and at mile 84.0.

Drainage area.--56,710 sq mi, approximately, of which a large area is probably noncontributing.

Records available.--April to August 1904 (gage heights only), June 1917 to September 1968. Gage-height records for this vicinity since August 1904 are contained in reports of U.S. Weather Bureau.

Gage.--Digital water-stage recorder. Datum of gage is 851.66 ft above mean sea level, datum of 1929. Prior to Feb. 28, 1961, staff or chain gages, or graphic water-stage recorders at several sites within 8,000 ft of present site at various datums. Feb. 28, 1961 to May 26, 1961, graphic water-stage recorder at present site and datum.

Average discharge.--51 years, 5,220 cfs (3,779,000 acre-ft per year).

Extremes.--Maximum discharge during year, 40,400 cfs Aug. 3 (gage height, 16.17 ft); minimum, 731 cfs July 22.
1917-68: Maximum discharge, 469,000 cfs July 13, 1951 (gage height, 35.8 ft from floodmark, present site and datum); minimum, 112 cfs Dec. 16, 1940, result of freezeup.
Maximum stage known since at least 1844, that of July 13, 1951.
Flood of May 30, 1903 (second highest since 1844) reached a stage of about 33 ft, present site and datum, from floodmarks at site 5,900 ft upstream (discharge, about 300,000 cfs).
A flood in the spring of 1844 is known to have been higher than that of 1903 and on the basis of legendary marks or deductions is believed to be the greatest known.

Remarks.--Records good. Natural flow of stream affected by reservoirs in Colorado, Nebraska and Kansas, and by numerous diversions for irrigation above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6,240	4,380	2,750	2,100	2,220	1,780	2,600	2,390	3,340	2,470	8,470	4,740
2	5,580	4,280	2,890	2,100	2,150	1,770	2,640	2,320	3,520	2,350	13,400	4,710
3	5,160	4,610	2,710	1,800	2,030	1,740	2,850	2,290	3,090	2,250	34,300	4,590
4	4,820	4,610	2,660	1,900	1,960	1,690	2,980	2,280	2,920	2,190	11,900	4,730
5	4,700	4,430	2,640	2,000	1,940	1,680	2,410	2,220	2,810	2,270	5,140	5,000
6	4,550	4,390	2,590	2,000	1,930	1,710	1,930	2,310	2,740	2,300	3,590	4,040
7	19,100	4,240	2,580	1,800	1,900	1,700	2,090	2,430	2,760	2,410	3,020	3,810
8	34,600	4,110	2,540	2,000	1,850	1,540	2,260	2,840	2,730	2,370	3,170	3,810
9	28,900	3,930	2,560	2,100	1,830	1,170	2,060	2,950	2,730	2,420	6,430	3,920
10	15,400	3,440	2,640	2,100	1,800	1,040	1,940	2,870	2,910	2,580	18,900	4,120
11	9,840	3,290	2,580	2,100	1,800	1,030	2,150	2,350	3,570	2,320	27,100	3,740
12	7,450	3,200	2,550	2,000	1,800	987	2,040	2,320	2,590	2,140	11,500	3,530
13	6,260	3,100	2,510	2,000	1,730	896	1,560	2,350	2,380	2,140	5,440	3,480
14	5,650	3,150	2,500	1,900	1,750	845	1,980	2,350	3,500	2,120	7,250	3,460
15	7,830	3,190	2,420	1,900	1,770	865	2,620	3,230	5,720	2,100	7,710	3,460
16	7,990	2,800	2,050	1,900	1,740	848	1,860	2,560	6,850	3,400	7,930	3,510
17	7,920	2,690	1,950	2,000	1,700	805	4,240	2,420	6,070	2,370	7,540	3,760
18	6,410	2,610	2,130	2,000	1,740	813	3,380	2,450	5,820	1,730	7,390	3,640
19	5,040	2,670	2,350	2,000	1,770	917	2,640	2,350	5,670	1,290	7,690	3,460
20	5,040	3,280	2,210	2,100	1,790	919	3,140	2,380	5,410	1,160	7,500	3,470
21	4,620	3,410	2,100	2,200	1,790	901	2,770	2,310	5,000	840	9,310	3,500
22	5,030	3,380	2,080	2,300	1,800	875	2,870	2,380	4,820	800	13,800	3,520
23	5,110	3,340	2,130	2,400	1,820	855	3,900	2,870	4,510	835	12,500	4,130
24	4,710	3,320	2,170	2,500	1,780	844	3,700	3,760	3,750	9,620	8,540	4,890
25	4,050	3,270	2,140	2,700	1,820	973	3,550	5,180	3,590	23,700	4,790	4,520
26	5,810	3,220	2,060	2,700	1,820	1,880	3,260	4,750	3,190	16,700	3,100	3,970
27	5,180	3,180	2,070	2,700	1,800	2,310	3,010	3,840	2,700	9,910	3,230	3,760
28	4,720	3,110	2,080	2,380	1,830	2,360	2,670	3,340	2,610	4,670	3,560	3,710
29	3,710	2,930	2,080	2,260	1,760	2,410	2,570	3,150	2,480	2,780	3,530	3,850
30	4,300	2,790	2,050	2,200	------	2,400	2,460	2,940	2,360	2,830	3,850	4,020
31	4,570	------	2,000	2,120	------	2,570	------	3,090	------	5,950	4,360	------
TOTAL	250,290	104,350	72,770	66,260	53,420	43,123	80,130	87,270	112,140	123,015	275,940	118,850
MEAN	8,074	3,478	2,347	2,137	1,842	1,391	2,671	2,815	3,738	3,968	8,901	3,962
MAX	34,600	4,610	2,890	2,700	2,220	2,570	4,240	5,180	6,850	23,700	34,300	5,000
MIN	3,710	2,610	1,950	1,800	1,700	805	1,560	2,220	2,360	800	3,020	3,460
AC-FT	496,400	207,000	144,300	131,400	106,000	85,530	158,900	173,100	222,400	244,000	547,300	235,700

CAL YR 1967: TOTAL 1,953,481 MEAN 5,352 MAX 72,900 MIN 337 AC-FT 3,875,000
WTR YR 1968: TOTAL 1,387,558 MEAN 3,791 MAX 34,600 MIN 800 AC-FT 2,752,000

6-8891. Soldier Creek near Goff, Kans.

Location.--Lat 39°37'27", long 95°57'57", on north line sec. 16, T. 5 S., R. 13 E., 20 ft downstream from highway bridge, 3.3 miles southwest of Goff, Nemaha County, and 73.6 miles upstream from mouth.

Drainage area.--2.06 sq mi.

Records available.--March 1964 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,297.10 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 314 cfs Aug. 2 (gage height, 9.26 ft); no flow many days.
1964-68: Maximum discharge, 368 cfs Sept. 20, 1965 (gage height, 9.68 ft), from rating curve extended above 250 cfs on basis of logarithmic plotting; no flow at times in most years.

Remarks.--Records good above 1 cfs and fair below.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.18	.14	0	.14	.08	.02	.04	.09	0	.49	.09
2	0	.42	.14	0	.09	.06	.04	.02	.06	0	69	.03
3	0	.33	.11	0	.09	.05	.15	0	.05	0	1.3	12
4	0	.10	.10	0	.09	.06	.06	0	.03	0	.34	4.6
5	.07	.09	.10	.04	.09	.06	.04	0	.03	0	.20	.41
6	1.3	.09	.13	0	.08	.05	.04	0	.03	0	.15	.23
7	11	.08	.14	0	.07	.05	.04	.10	.03	0	.11	.14
8	.40	.08	.14	.04	.06	.06	.04	.03	.02	0	.12	.07
9	.06	.08	.14	.04	.06	.06	.03	.01	.02	0	17	.05
10	.04	.09	.16	.04	.05	.05	.02	.01	.29	0	35	.05
11	.04	.09	.16	.04	0	.04	.02	.01	.08	0	2.5	.05
12	.04	.09	.16	.04	0	.03	.02	.01	.04	0	.79	.05
13	.05	.09	.13	0	0	.03	.03	2.9	.05	0	.52	.05
14	.05	.09	.11	.04	0	.05	.05	.42	.08	0	.30	.05
15	.80	.09	.11	.04	0	.04	.05	.10	.03	0	.25	.05
16	.07	.09	.13	.05	0	.03	.04	.06	.04	12	.21	.05
17	.02	.09	.09	.10	0	.04	.04	.06	.03	.04	.46	.12
18	.02	.10	.09	.50	0	.06	.04	.06	.02	.01	.24	.15
19	.02	.10	.08	1.0	0	.05	.04	.06	.02	0	.21	.08
20	.02	.10	.08	4.0	0	.04	.06	.06	.02	0	.12	.05
21	.02	.12	.08	5.0	0	.03	.04	.06	.01	0	.05	.05
22	.02	.12	.05	3.0	0	0	.05	.04	.01	0	.05	.05
23	.02	.12	.07	1.0	0	0	.06	.04	0	23	.02	16
24	.07	.12	.09	.70	0	0	.05	.07	0	15	.08	.84
25	.05	.12	.08	.50	.05	0	.04	.09	0	.33	.02	.31
26	.05	.12	.05	.30	.05	0	.04	.09	0	11	.02	.18
27	.06	.10	.04	.20	.07	.06	.04	.07	0	6.2	.02	.12
28	.06	.10	.04	.18	.07	.01	.03	.06	0	.28	.02	.05
29	.07	.14	.04	.16	.07	.01	.04	.05	0	.08	.14	.02
30	.07	.15	.04	.15	------	.01	.04	.05	0	17	.20	.02
31	.11	------	0	.14	------	.02	------	.47	------	27	.19	------
TOTAL	14.60	3.38	3.02	17.30	1.13	1.13	1.30	5.14	1.08	111.94	130.12	36.01
MEAN	.47	.12	.097	.56	.039	.037	.043	.17	.036	3.61	4.20	1.20
MAX	11	.42	.16	5.0	.14	.08	.15	2.9	.29	27	69	16
MIN	0	.08	0	0	0	0	.02	0	0	0	.02	.02
AC-FT	29	7.3	6.0	34	2.2	2.2	2.6	10	2.1	222	258	71

CAL YR 1967: TOTAL 258.86 MEAN .71 MAX 45 MIN 0 AC-FT 514
WTR YR 1968: TOTAL 326.45 MEAN .89 MAX 69 MIN 0 AC-FT 648

PEAK DISCHARGE (BASE, 100 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7-23	2145	8.76	279	8-10	1015	6.24	142
7-31	0745	5.61	111	9-03	2200	5.81	120
8-02	1030	9.26	314				

6-8891.2 Soldier Creek near Bancroft, Kans.

Location.--Lat 39°35'42", long 95°58'17", on north line sec. 28, T. 5 S., R. 13 E., at downstream side of highway bridge, 4 miles west of Bancroft, Nemaha County, and 70.3 miles upstream from mouth.

Drainage area.--10.5 sq mi.

Records available.--March 1964 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,239.50 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 1,730 cfs Aug. 2 (gage height, 13.71 ft); no flow at times.
1964-68: Maximum discharge, 1,930 cfs (revised) Sept. 21, 1965 (gage height, 14.05 ft), no flow many days each year.

Remarks.--Records good except those for winter months, which are poor.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.90	.18	.05	1.6	.48	.18	.23	.94	0	14	.47
2	0	2.2	.18	.05	.93	.50	.25	.18	.37	0	474	.29
3	0	3.4	.17	.06	.81	.29	1.6	.11	.29	0	28	46
4	0	.57	.16	.06	.73	.40	.62	.09	.23	0	10	51
5	0	.39	.15	.06	.65	.43	.32	.08	.14	0	4.2	2.9
6	.99	.34	.15	.07	.57	.39	.30	.12	.16	0	2.4	1.7
7	76	.32	.15	.07	.40	.39	.27	1.1	.12	0	1.6	1.3
8	7.8	.33	.15	.07	.35	.48	.27	.57	.12	0	1.8	.95
9	1.7	.26	.15	.07	.41	.46	.26	.23	.10	0	81	.77
10	.41	.25	.23	.07	.38	.40	.23	.18	.32	0	184	.70
11	.32	.23	.32	.07	.28	.27	.20	.18	1.9	0	17	.64
12	.33	.21	.28	.07	.30	.24	.18	.18	.23	0	5.3	.47
13	.71	.20	.20	.07	.23	.24	.22	18	.11	0	3.5	.44
14	.73	.17	.14	.07	.21	.33	.35	8.4	.24	0	2.4	.41
15	4.3	.15	.12	.07	.26	.70	.36	1.4	.19	0	1.9	.31
16	3.2	.15	.13	.10	.34	1.4	.33	.86	.12	31	1.6	.35
17	.72	.12	.32	.20	.27	.82	.28	.57	.09	1.4	2.0	.53
18	.50	.20	.45	.50	.25	.54	.26	.45	.07	.16	1.5	1.2
19	.56	.15	.41	2.0	.35	.47	.27	.36	.06	.06	1.3	.50
20	.62	.15	.39	15	.55	.28	.38	.33	.04	.03	.82	.42
21	.58	.18	.35	20	.38	.24	.37	.33	.02	0	.59	.30
22	.75	.18	.25	10	.39	.29	.37	.73	.02	0	.45	.25
23	.89	.17	.15	7.0	.37	.24	.48	1.0	0	65	.41	70
24	.89	.18	.15	5.0	.39	.27	.33	.58	0	132	.52	3.7
25	.81	.20	.27	3.5	.40	.33	.27	.44	.02	4.7	.39	1.4
26	.78	.18	.22	3.0	.68	.33	.30	.99	0	85	.31	.91
27	.81	.18	.23	2.5	.78	.30	.30	.50	0	57	.25	.66
28	.88	.20	.24	2.0	.73	.33	.30	.34	0	5.6	.22	.52
29	.81	.13	.24	1.8	.35	.28	.29	.27	0	2.3	.35	.33
30	.81	.18	.20	1.6	------	.21	.27	.28	0	79	.76	.36
31	.78	------	.10	1.5	------	.24	------	6.8	------	155	.81	------
TOTAL	112.68	12.47	6.83	76.68	14.34	12.57	10.41	46.88	5.90	618.25	843.38	189.78
MEAN	3.63	.42	.22	2.47	.49	.41	.35	1.51	.20	19.9	27.2	6.33
MAX	76	3.4	.45	20	1.6	1.4	1.6	18	1.9	155	474	70
MIN	0	.12	.10	.05	.21	.21	.18	.08	0	0	.22	.25
AC-FT	224	25	14	152	28	25	21	93	12	1,230	1,670	376

CAL YR 1967: TOTAL 1,427.59 MEAN 3.91 MAX 239 MIN 0 AC-FT 2,830
WTR YR 1968: TOTAL 1,950.17 MEAN 5.33 MAX 474 MIN 0 AC-FT 3,870

PEAK DISCHARGE (BASE, 400 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7-23	2400	11.30	860	8-10	1530	9.86	547
7-31	0915	10.35	645	9-03	2345	9.19	438
8-02	1200	13.71	1,730				

6-8891.4 Soldier Creek near Soldier, Kans.

Location.--Lat 39°33'57", long 95°57'45", on north line sec. 4, T. 6 S., R. 13 E., at downstream side of highway bridge, 2 miles north of Soldier, Jackson County, and 67.5 miles upstream from mouth.

Drainage area.--16.9 sq mi.

Records available.--March 1964 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,206.02 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 2,090 cfs Aug. 2 (gage height, 12.11 ft); no flow at times.
1964-68: Maximum discharge, 2,330 cfs Sept. 20, 1965 (gage height, 13.54 ft), from rating curve extended above 800 cfs on basis of slope-area measurement of peak flow; no flow at times in 1966-68.

Remarks.--Records good except those for winter months, which are poor.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.25	.80	.25	.05	2.4	.90	.57	.43	2.2	.03	10	1.1
2	.23	3.0	.25	.05	1.5	.88	.73	.37	1.1	.03	682	.83
3	.17	5.2	.19	.05	1.5	.78	2.1	.32	.77	.01	29	131
4	.19	1.5	.27	.05	1.4	.74	1.6	.33	.63	.02	8.0	98
5	.61	.72	.21	.10	1.2	.92	.77	.19	.56	.02	4.8	4.7
6	2.5	.60	.19	.05	1.0	.95	.69	.32	.46	.02	3.5	2.7
7	90	.56	.19	.05	.82	.90	.74	1.2	.34	.02	2.9	2.0
8	8.2	.52	.19	.10	.78	1.2	.61	1.5	.31	0	2.7	1.6
9	1.5	.47	.21	.10	.85	1.2	.57	.69	.23	0	119	1.3
10	.47	.43	.36	.10	.70	1.1	.52	.46	.53	0	257	1.2
11	.17	.43	.65	.10	.75	.95	.48	.43	2.2	0	25	1.2
12	.10	.43	.58	.10	.57	.76	.43	.34	.72	0	6.8	1.0
13	.07	.55	.43	.10	.51	.75	.48	27	.35	0	4.6	.89
14	.05	.41	.34	.10	.25	.80	.73	8.3	.53	0	3.3	.84
15	12	.34	.25	.10	.43	.88	.69	2.1	.59	0	2.9	.83
16	3.7	.34	.17	.20	.61	1.6	.75	1.3	.34	22	2.4	.82
17	.86	.34	.63	.50	.61	1.6	.85	.97	.23	1.8	3.0	1.1
18	.36	.45	1.2	1.2	.50	1.3	.69	.86	.18	.12	2.3	2.2
19	.13	.26	1.3	3.0	.66	1.1	.74	.82	.13	0	2.0	1.1
20	.07	.18	1.1	26	.75	1.0	1.0	.69	.10	0	1.5	.95
21	.07	.19	1.0	30	.68	.86	1.0	.60	.08	0	1.2	.83
22	.06	.19	.86	15	.51	.73	.99	1.0	.07	0	1.1	.75
23	.10	.19	.68	6.9	.46	.81	1.1	1.5	.05	48	1.0	107
24	.25	.19	.60	5.2	.63	.78	.90	1.1	.06	195	1.1	5.8
25	.50	.17	.56	3.6	.83	.86	.69	2.8	.11	5.1	.90	2.2
26	.19	.10	.40	3.3	1.1	.95	.69	1.7	.08	158	.83	1.5
27	.19	.09	.30	3.0	1.3	.93	.69	1.1	.05	85	.80	1.1
28	.28	.19	.30	2.8	1.1	.83	.78	.82	.05	4.8	.80	.97
29	.44	.16	.20	2.7	.68	.76	.68	.67	.04	2.1	.87	.76
30	.52	.22	.10	2.6	------	.69	.54	.68	.03	130	1.3	.70
31	.61	------	.05	2.4	------	.66	------	10	------	228	1.3	------
TOTAL	124.84	19.22	14.01	109.60	25.08	29.17	23.80	70.59	13.12	880.07	1,183.90	376.97
MEAN	4.03	.64	.45	3.54	.86	.94	.79	2.28	.44	28.4	38.2	12.6
MAX	90	5.2	1.3	30	2.4	1.6	2.1	27	2.2	228	682	131
MIN	.05	.09	.05	.05	.25	.66	.43	.19	.03	0	.80	.70
AC-FT	248	38	28	217	50	58	47	140	26	1,750	2,350	748

CAL YR 1967: TOTAL 2,045.56 MEAN 5.60 MAX 347 MIN 0 AC-FT 4,060
WTR YR 1968: TOTAL 2,870.37 MEAN 7.84 MAX 682 MIN 0 AC-FT 5,690

PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7-24	0115	7.55	935	8-10	1330	7.19	858
7-31	1000	6.85	780	9-03	2200	9.82	1,520
8-02	0900	12.11	2,090				

6-8891.6 Soldier Creek near Circleville, Kans.

Location.--Lat 39°27'47", long 95°57'00", on north line sec. 10, T. 7 S., R. 13 E., 160 ft downstream from bridge on State Highway 16, 5.8 miles southwest of Circleville, Jackson County, and 56.8 miles upstream from mouth.

Drainage area.--49.3 sq mi.

Records available.--March 1964 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,094.58 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 3,310 cfs Aug. 2 (gage height, 15.52 ft); minimum, 0.27 cfs July 23.
1964-68: Maximum discharge, 5,120 cfs Sept. 21, 1965 (gage height, 18.94 ft); minimum, 0.14 cfs Mar. 7, 1967.

Remarks.--Records good except those for winter months, which are poor.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	2.5	2.4	1.0	9.1	4.9	1.9	1.9	19	.72	82	4.5
2	1.7	7.7	2.4	1.0	6.5	3.4	2.5	1.9	4.7	.66	1,370	3.4
3	.70	25	2.6	1.0	7.1	3.6	4.2	1.7	3.3	.65	166	142
4	.84	7.5	2.4	1.0	7.2	2.8	3.8	1.7	2.8	.58	77	513
5	5.5	4.2	2.4	1.5	6.6	2.8	3.0	1.9	2.6	.51	46	35
6	44	3.4	2.4	1.0	6.1	2.8	2.5	1.7	2.4	.45	34	22
7	384	3.3	2.4	1.0	5.1	2.7	2.2	2.6	2.2	.44	26	16
8	53	2.9	2.4	1.5	5.0	2.8	2.0	2.6	2.1	.37	22	12
9	14	2.8	2.4	1.5	5.2	2.8	2.0	2.0	1.9	.53	438	9.5
10	6.0	2.8	2.7	1.5	4.8	2.7	2.0	1.8	2.3	.37	1,030	8.3
11	4.1	2.8	2.8	1.5	4.4	2.5	2.0	1.7	2.3	.37	156	7.6
12	3.8	2.7	2.8	1.5	4.5	2.3	2.0	2.6	2.8	.37	62	7.1
13	3.2	2.7	2.6	1.5	4.5	2.1	2.0	17	1.9	.37	43	6.7
14	2.9	2.6	2.7	1.5	4.5	2.4	2.6	69	2.0	.37	32	6.1
15	18	2.6	3.6	1.5	3.8	2.1	2.2	8.9	1.9	.37	27	5.7
16	18	2.6	2.4	1.5	4.0	2.0	2.4	5.5	2.1	21	21	5.6
17	4.7	2.6	3.3	2.0	4.0	2.7	3.0	4.0	1.8	8.3	18	5.9
18	3.0	2.5	7.7	3.0	4.0	3.2	2.4	3.4	1.7	1.2	17	10
19	2.6	2.4	6.0	10	3.8	2.8	2.4	3.2	1.6	.65	14	7.0
20	2.4	2.6	4.0	40	3.5	2.6	2.8	3.0	1.5	.51	9.6	5.4
21	2.3	2.4	3.8	60	3.5	2.4	2.6	2.8	1.3	.44	7.5	5.0
22	2.2	2.4	4.9	35	3.4	2.2	2.8	4.0	1.3	.37	6.3	4.6
23	1.9	2.4	2.9	20	3.4	2.0	2.6	5.4	1.2	.59	5.4	147
24	1.8	2.3	2.8	15	3.4	2.2	2.2	4.0	1.2	298	8.6	24
25	1.6	2.2	3.0	13	3.5	2.4	2.0	17	1.4	18	4.6	7.0
26	1.8	2.2	2.4	12	4.0	2.5	2.0	9.3	1.2	341	4.0	4.5
27	1.9	2.0	2.5	11	4.0	2.6	2.0	4.3	1.1	297	3.5	3.5
28	1.9	2.0	2.5	10	4.1	2.4	2.0	3.3	.94	15	3.3	3.0
29	1.9	2.1	2.5	10	4.9	2.4	1.9	2.9	.93	2.8	4.3	2.3
30	1.9	2.7	2.5	8.5	------	2.3	1.9	2.9	.78	410	6.4	2.1
31	2.1	------	1.0	9.6	------	2.1	------	53	------	951	12	------
TOTAL	594.84	110.9	93.2	280.1	137.9	81.5	71.9	247.0	74.25	2,372.99	3,756.5	1,035.8
MEAN	19.2	3.70	3.01	9.04	4.76	2.63	2.40	7.97	2.48	76.5	121	34.5
MAX	384	25	7.7	60	9.1	4.9	4.2	69	19	951	1,370	513
MIN	.70	2.0	1.0	1.0	3.4	2.0	1.9	1.7	.78	.37	3.3	2.1
AC-FT	1,180	220	185	556	274	162	143	490	147	4,710	7,450	2,050

CAL YR 1967: TOTAL 10,553.61 MEAN 28.9 MAX 1,460 MIN .47 AC-FT 20,930
WTR YR 1968: TOTAL 8,856.88 MEAN 24.2 MAX 1,370 MIN .37 AC-FT 17,570

PEAK DISCHARGE (BASE, 1,200 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7-26	0800	10.02	1,380	8-09	0800	10.38	1,480
7-30	0645	9.92	1,350	8-10	1330	14.99	3,100
7-31	0830	15.06	3,120	9-04	0130	12.58	2,140
8-02	1500	15.52	3,310				

6-8891.8 Soldier Creek near St. Clere, Kans.

Location.--Lat 39°22'33", long 95°55'05", on north line sec. 12, T. 8 S., R. 13 E., at upstream side of highway bridge, 7.8 miles east of St. Clere, Jackson County, and 45.8 miles upstream from mouth.

Drainage area.--80 sq mi.

Records available.--March 1964 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,023.04 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 3,580 cfs Aug. 2 (gage height, 18.69 ft); minimum, 0.40 cfs July 23.
1964-68: Maximum discharge, 8,430 cfs June 12, 1967 (gage height, 21.41 ft); maximum gage height, 21.54 ft. Sept. 21, 1965; no flow for part of Apr. 9, 1964 (result of beaver activity upstream).

Remarks.--Records good except those for winter months, which are poor.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	8.5	8.0	4.5	13	8.0	5.4	6.3	23	1.6	151	22
2	3.0	10	7.6	4.5	11	7.5	6.4	6.3	11	1.6	1,970	19
3	3.3	23	7.3	4.5	10	7.3	8.3	5.8	8.0	1.6	411	99
4	2.7	15	7.7	5.0	11	7.3	7.2	5.4	6.9	1.7	108	870
5	21	11	7.4	6.0	10	7.3	6.8	5.4	6.2	1.8	74	72
6	12	9.8	7.5	5.0	9.6	7.0	6.4	6.1	6.3	2.0	57	43
7	705	9.2	7.5	4.5	9.0	7.0	6.0	9.0	5.8	1.7	46	34
8	54	9.0	7.3	5.0	8.5	7.3	5.6	8.2	5.4	1.4	42	28
9	21	8.7	7.3	5.0	8.8	7.3	5.6	6.8	5.4	2.6	720	24
10	15	8.8	7.3	6.0	8.5	7.0	5.5	6.6	5.6	1.9	1,950	22
11	13	8.9	7.5	6.0	7.4	6.6	5.5	6.4	6.1	1.2	475	20
12	12	8.2	7.8	6.0	8.1	6.2	5.6	6.2	5.4	.96	125	19
13	11	8.2	7.3	5.0	6.8	6.4	5.6	7.2	5.2	.81	91	18
14	9.8	8.3	6.9	6.0	7.4	6.7	7.5	53	5.8	.70	70	17
15	11	7.8	5.4	6.0	8.5	6.8	6.1	15	5.2	.71	61	16
16	20	7.9	4.8	6.0	8.1	6.4	6.3	10	5.4	4.3	51	16
17	13	8.0	6.6	7.0	8.0	6.5	8.1	8.7	5.2	14	43	16
18	10	7.8	10	8.0	7.7	7.0	6.5	7.9	4.5	3.9	49	19
19	9.2	7.7	12	15	8.0	7.0	6.5	7.1	4.1	1.6	39	18
20	8.5	7.5	9.8	30	8.0	6.2	8.2	6.8	3.7	.97	32	15
21	8.1	7.8	9.0	80	8.0	5.7	7.2	6.6	3.4	.75	28	14
22	8.2	7.8	7.0	50	7.9	5.8	8.4	8.7	3.2	.57	25	13
23	7.4	7.5	7.7	35	7.4	5.8	9.9	10	2.8	2.1	23	347
24	6.8	7.5	7.9	25	7.6	6.1	7.6	8.8	2.5	311	29	70
25	6.4	7.3	7.5	20	8.4	6.3	7.0	8.2	2.7	30	22	28
26	6.9	7.5	7.3	15	8.6	6.3	7.3	16	2.5	331	19	21
27	7.7	7.3	7.0	15	8.5	6.2	7.1	9.0	2.4	337	18	18
28	7.5	7.1	7.0	14	8.1	5.8	6.8	7.4	2.1	28	18	16
29	7.1	7.6	6.0	14	7.9	5.8	6.8	6.5	1.9	13	20	15
30	7.2	8.0	5.5	14	------	5.8	6.7	6.6	1.7	646	27	14
31	7.0	------	4.5	13	------	5.4	------	29	------	1,490	39	------
TOTAL	1,038.1	268.7	229.4	440.0	249.8	203.8	203.9	311.0	159.4	3,236.42	6,833	1,963
MEAN	33.5	8.96	7.40	14.2	8.61	6.57	6.80	10.0	5.31	104	220	65.4
MAX	705	23	12	80	13	8.0	9.9	53	23	1,490	1,970	870
MIN	2.7	7.1	4.5	4.5	6.8	5.4	5.4	5.4	1.7	.52	18	13
AC-FT	2,060	533	455	873	495	404	404	617	316	6,420	13,550	3,890

CAL YR 1967: TOTAL 21,808.6 MEAN 59.7 MAX 3,050 MIN 1.3 AC-FT 43,260
WTR YR 1968: TOTAL 15,136.52 MEAN 41.4 MAX 1,970 MIN .52 AC-FT 30,020

PEAK DISCHARGE (BASE, 1,300 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	0415	15.27	2,190	8-09	1115	13.83	1,800
7-30	1045	13.96	1,790	8-10	1815	18.62	3,540
7-31	1230	18.58	3,520	9-04	0615	15.36	2,260
8-02	1830	18.69	3,580				

6-8892. Soldier Creek near Delia, Kans.

Location.--Lat 39°12'08", long 95°52'25", on south line sec. 5, T. 10 S., R. 14 E., at upstream side of highway bridge, 5.1 miles upstream from Walnut Creek and 5½ miles southeast of Delia, Shawnee County.

Drainage area.--157 sq mi.

Records available.--October 1958 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 931.34 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1963, graphic water-stage recorder at same site and datum.

Average discharge.--10 years, 74.6 cfs (54,010 acre-ft per year).

Extremes.--Maximum discharge during year, 5,560 cfs Aug. 10 (gage height, 21.57 ft); minimum, 1.2 cfs July 15, 16, 23.
1958-68: Maximum discharge, 7,580 cfs June 12, 1967 (gage height, 21.45 ft); maximum gage height, that of Aug. 10, 1968; minimum, 0.04 cfs Oct. 17, 1966.
Maximum stage known since at least 1909, about 24 ft June 21, 1951, from floodmarks and information by local residents.

Remarks.--Records good. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	14	15	7.0	29	21	9.2	20	84	3.5	1,350	74
2	4.8	19	15	7.0	28	17	9.8	18	40	3.1	1,490	45
3	4.0	39	15	7.0	27	17	15	16	22	2.8	3,020	37
4	3.8	57	14	8.0	25	15	19	14	18	2.6	311	638
5	4.2	33	14	9.0	24	15	14	13	16	2.4	159	357
6	28	23	14	8.0	23	14	12	14	15	3.2	116	92
7	800	20	14	8.0	21	14	12	21	13	2.6	92	66
8	342	18	14	9.0	19	14	11	26	13	2.4	81	53
9	73	18	13	9.0	20	15	9.6	18	12	2.7	1,010	43
10	30	18	14	10	20	14	9.3	15	14	2.2	3,910	38
11	20	18	15	10	22	13	9.3	14	22	3.2	3,120	35
12	16	17	16	10	22	12	9.3	14	15	2.4	397	33
13	15	16	15	10	24	12	9.3	13	11	1.8	233	30
14	13	16	13	12	22	12	62	22	13	1.4	175	28
15	27	16	12	15	19	13	31	70	19	1.3	149	26
16	20	16	13	20	22	13	180	24	18	67	130	25
17	28	15	15	25	24	13	177	15	13	21	107	29
18	16	16	29	30	26	13	35	13	11	14	101	33
19	12	15	43	40	21	13	25	12	9.4	6.4	107	35
20	11	15	32	80	18	13	44	11	8.2	3.9	81	30
21	10	15	23	100	19	12	31	11	7.3	2.4	68	24
22	10	15	19	120	18	11	28	15	6.7	1.7	60	22
23	10	15	17	100	17	11	94	46	6.1	4.4	54	184
24	10	15	16	70	16	11	45	32	6.7	1,420	55	409
25	9.2	15	15	45	16	11	31	21	7.2	1,430	58	73
26	9.2	14	14	40	21	11	29	31	6.1	1,290	45	40
27	10	13	13	35	23	11	27	27	5.7	563	40	31
28	12	13	12	33	20	11	24	18	5.4	145	38	27
29	12	13	11	32	19	11	24	14	5.0	34	41	24
30	12	15	10	31	------	11	21	13	4.3	854	56	22
31	12	------	7.0	30	------	10	------	94	------	1,690	94	------
TOTAL	1,589.4	563	502.0	970.0	625	404	1,056.8	705	447.1	7,584.4	16,748	2,603
MEAN	51.3	18.8	16.2	31.3	21.6	13.0	35.2	22.7	14.9	245	540	86.8
MAX	800	57	43	120	29	21	180	94	84	1,690	3,910	638
MIN	3.8	13	7.0	7.0	16	10	9.2	11	4.3	1.3	38	22
AC-FT	3,150	1,120	996	1,920	1,240	801	2,100	1,400	887	15,040	33,220	5,160

CAL YR 1967: TOTAL 38,155.0 MEAN 105 MAX 6,340 MIN 1.9 AC-FT 75,680
WTR YR 1968: TOTAL 33,797.7 MEAN 92.3 MAX 3,910 MIN 1.3 AC-FT 67,040

PEAK DISCHARGE (BASE, 1,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7-24	1445	17.44	2,100	8-01	0545	17.98	2,310
7-25	1545	18.30	2,440	8-03	0430	20.17	3,490
7-26	1800	17.89	2,280	8-10	1515	21.57	5,560
7-30	1745	15.18	1,540				

6-8895. Soldier Creek near Topeka, Kans.

Location.--Lat 39°06'00", long 95°43'27", in NW¼ sec. 14, T. 11 S., R. 15 E., at downstream side of highway bridge, 1.5 miles upstream from Halfday Creek, 4 miles northwest of Topeka, Shawnee County, and at mile 6.5.

Drainage area.--290 sq mi.

Records available.--May 1929 to September 1932, August 1935 to September 1968. Prior to October 1935, published as "at Topeka." Records for October 1932 to July 1935, published in WSP 746, 761, and 786, have been found to be unreliable and should not be used.

Gage.--Digital water-stage recorder. Datum of gage is 862.95 ft above mean sea level, datum of 1929. Prior to July 27, 1935, chain gage at site 2 miles downstream at different datum. Aug. 1, 1935 to June 16, 1958, wire-weight gage and June 17, 1958 to May 24, 1960, graphic water-stage recorder, at present site and datum 4.0 ft higher. May 25, 1960 to June 8, 1961 wire-weight gage at site 1.1 miles downstream at datum 1.79 ft lower. June 9, 1961 to July 28, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--36 years, 127 cfs (91,940 acre-ft per year).

Extremes.--Maximum discharge during year, 15,600 cfs Aug. 10 (gage height, 18.90 ft); minimum, 3.8 cfs Feb. 13, (result of freezeup).
1929-32, 1935-68: Maximum discharge, 18,600 cfs June 12, 1967 (gage height, 20.11 ft); maximum gage height, 29.06 ft, datum then in use, July 12, 1951, from floodmark (backwater from Kansas River); no flow at times in 1931, 1935-40, 1953-57, 1966.

Remarks.--Records good except those for winter months, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	69	29	20	89	44	17	46	252	7.2	2,600	133
2	14	59	41	20	69	46	21	42	105	7.0	3,000	86
3	13	116	41	20	77	39	44	36	50	6.6	4,670	64
4	13	93	34	25	64	35	48	31	35	6.4	1,100	225
5	14	69	29	35	59	35	38	28	28	6.5	255	644
6	122	52	28	30	56	35	27	31	23	6.4	200	133
7	2,020	44	26	30	54	34	24	51	20	6.4	153	93
8	1,080	41	26	35	47	32	21	56	18	6.5	135	82
9	185	35	26	35	48	35	19	45	16	6.8	2,540	73
10	92	39	29	35	49	35	17	35	98	6.3	9,230	66
11	67	38	34	30	43	36	15	34	125	6.1	6,620	62
12	53	36	37	30	47	32	15	33	37	6.1	1,180	59
13	44	34	35	35	40	27	18	31	23	5.9	421	55
14	38	34	29	35	41	25	86	31	20	5.9	262	52
15	194	27	24	40	51	26	124	93	46	5.4	210	50
16	109	30	26	50	41	20	89	54	68	1,590	190	46
17	72	30	35	60	42	25	906	32	34	343	161	46
18	57	29	100	90	42	25	137	27	24	58	142	50
19	43	29	119	200	48	27	89	24	18	29	150	52
20	37	27	74	300	53	28	156	22	14	15	123	49
21	33	25	61	300	45	25	110	22	11	11	100	42
22	31	33	50	250	40	24	233	21	10	9.4	87	37
23	27	30	88	200	40	22	340	60	8.4	8.3	77	196
24	28	29	52	150	43	21	166	116	13	2,030	127	540
25	27	27	55	120	69	23	94	60	17	3,410	91	140
26	27	24	50	116	52	23	83	72	11	2,850	71	66
27	31	25	45	110	56	23	72	61	9.2	1,570	59	48
28	33	23	40	104	58	21	62	46	8.4	581	57	43
29	35	27	40	109	48	19	55	35	7.6	204	64	40
30	40	27	35	85	------	19	50	30	7.3	2,110	82	36
31	57	------	20	92	------	20	------	278	------	4,150	144	------
TOTAL	4,651	1,205	1,358	2,791	1,511	881	3,185	1,593	1,156.9	17,664.2	35,023	5,308
MEAN	150	40.2	43.8	90.0	52.1	28.4	106	51.4	38.6	634	1,130	110
MAX	2,020	116	119	300	89	46	906	278	252	4,150	9,230	644
MIN	13	23	20	20	40	19	15	22	7.3	5.4	57	36
AC-FT	9,230	2,390	2,690	5,540	3,000	1,750	6,320	3,160	2,290	39,000	69,470	6,560

CAL YR 1967: TOTAL 79,501.6 MEAN 218 MAX 15,700 MIN 2.0 AC-FT 157,700
WTR YR 1968: TOTAL 76,329.1 MEAN 209 MAX 9,230 MIN 5.4 AC-FT 151,400

PEAK DISCHARGE (BASE, 3,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7-24	1600	9.82	3,430	7-31	1530	12.34	5,130
7-25	1200	14.44	7,400	8-02	1630	13.48	6,350
7-26	1815	10.58	3,630	8-09	0845	12.71	5,500
7-30	2045	10.25	3,400	8-10	0530	18.90	15,600

6-8904. Delaware River near Arrington, Kans.

Location.--Lat 39°24'22", long 95°30'21", in SW¼SW¼SE¼ sec. 27, T. 7 S., R. 17 E., at upstream side of highway bridge, 4.2 miles southeast of Arrington, Atchison County and at mile 36.9. Prior to June 27, 1968, at site 3.2 miles upstream.

Drainage area.--751 sq mi.

Records available.--September 1965 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 889.07 ft above mean sea level, datum of 1929. Prior to Oct. 26, 1965, graphic water-stage recorder and Oct. 26, 1965 to June 26, 1968, digital water-stage recorder at site 3.2 miles upstream at datum 10.08 ft higher.

Extremes.--Maximum discharge during year, 12,100 cfs Aug. 11 (gage-height, 28.04 ft); minimum, 6.6 cfs, July 15.
1965-68: Maximum discharge, 33,800 cfs June 12, 1967 (gage-height, 31.27 ft, present site and datum); minimum, that of July 15, 1968.

Remarks.--Records good except those for winter months, which are poor. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	90	68	64	130	64	39	65	675	10	8,250	192
2	17	113	70	64	110	94	40	60	146	9.5	5,470	121
3	16	219	67	64	110	61	84	52	77	8.9	9,210	97
4	14	151	59	66	100	64	101	45	59	8.3	1,070	2,710
5	134	105	59	66	100	81	73	42	47	8.9	523	597
6	501	87	59	55	90	75	58	44	40	17	362	240
7	7,820	79	59	50	90	66	53	74	36	13	295	170
8	2,110	76	56	60	80	72	51	95	36	9.2	273	137
9	439	76	56	65	80	71	45	68	37	8.3	3,520	117
10	225	76	88	65	80	72	39	54	40	11	5,770	104
11	159	76	96	65	68	71	38	49	91	8.4	11,100	97
12	135	71	84	60	60	64	39	47	154	7.8	2,190	93
13	119	66	70	60	60	61	41	46	67	7.1	878	86
14	103	65	53	60	65	64	92	84	72	7.0	626	80
15	115	65	45	60	70	67	75	198	60	7.0	480	74
16	160	64	57	65	76	65	59	88	40	5,110	382	70
17	118	66	74	70	65	59	131	52	34	5,140	901	79
18	90	64	176	80	76	57	87	42	33	375	632	102
19	77	60	168	100	83	58	69	37	90	192	354	107
20	72	59	109	150	85	55	109	33	187	110	254	99
21	70	62	96	208	65	48	90	33	54	75	206	84
22	67	62	62	248	85	45	100	46	37	61	178	70
23	63	61	58	438	83	44	927	83	32	53	158	910
24	65	63	64	374	72	48	237	72	26	585	164	999
25	64	64	70	270	74	53	137	62	21	341	180	203
26	62	60	66	240	88	54	120	79	20	429	130	128
27	71	54	64	228	91	53	99	82	15	3,300	113	99
28	73	46	64	211	96	49	83	59	13	497	106	85
29	73	56	70	190	66	45	76	46	12	202	111	76
30	88	66	70	170	------	44	69	39	11	5,300	146	71
31	79	------	66	150	------	43	------	142	------	10,900	200	------
TOTAL	13,220	2,323	2,323	4,116	2,398	1,867	3,261	2,018	2,262	32,811.4	54,232	8,097
MEAN	426	77.4	74.9	133	82.7	60.2	109	65.1	75.4	1,058	1,749	270
MAX	7,820	219	176	438	130	94	927	198	675	10,900	11,100	2,710
MIN	14	46	45	50	60	43	38	33	11	7.0	106	70
AC-FT	26,220	4,610	4,610	8,160	4,760	3,700	6,470	4,000	4,490	65,080	107,600	16,060

CAL YR 1967: TOTAL 188,560 MEAN 517 MAX 26,400 MIN 12 AC-FT 374,000
WTR YR 1968: TOTAL 128,928.4 MEAN 352 MAX 11,100 MIN 7.0 AC-FT 255,700

PEAK DISCHARGE (BASE, 3,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	1500	26.43	10,200	8-03	0700	27.80	11,800
7-16	2200	25.95	9,950	8-09	1800	22.27	6,690
7-27	0900	21.13	5,890	8-11	1200	28.04	12,100
8-01	0400	28.00	12,000	9-04	1300	19.54	4,920

6-8906. Rock Creek near Meriden, Kans.

Location.--Lat 39°11'34", long 95°33'05", in NW¼SW¼ sec. 8, T. 10 S., R. 17 E., at downstream side of bridge on State Highway 4, 1.0 mile east of Meriden, Jefferson County.

Drainage area.--22.0 sq mi.

Records available.--October 1956 to February 1963 (annual peak stages only). March 1963 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 909.07 ft above mean sea level, datum of 1929. Mar. 5, 1963 to Apr. 16, 1964, graphic water-stage recorder at same site and datum. Prior to Mar. 5, 1963, crest-stage gage at highway bridge, 250 ft downstream at datum 3.82 ft lower.

Average discharge.--5 years, 14.3 cfs (10,350 acre-ft per year).

Extremes.--Maximum discharge during year, 3,190 cfs Aug. 10 (gage height, 13.37 ft); no flow July 13-15.
1956-68: Maximum discharge, 6,940 cfs June 12, 1966 (gage height, 16.60 ft); no flow at times.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.65	19	4.7	6.5	4.5	4.1	1.8	4.5	6.7	.57	12	4.0
2	.57	24	14	6.5	5.7	4.7	3.1	1.0	4.7	.42	645	2.1
3	.50	45	4.9	6.5	5.4	2.0	13	6.0	2.8	.34	88	1.8
4	.27	14	6.4	6.5	5.1	2.8	5.1	5.4	2.2	.44	28	2.0
5	19	4.5	5.4	6.5	4.5	4.4	4.3	5.7	1.8	.27	12	2.0
6	43	8.0	5.1	6.5	4.3	2.8	6.0	6.4	1.8	2.0	8.3	1.7
7	687	1.4	4.8	6.5	4.0	2.8	3.4	14	1.6	.50	6.4	1.4
8	56	1.0	4.5	6.5	4.7	4.4	2.6	1.7	1.6	.27	5.1	1.1
9	17	6.7	1.7	6.5	4.5	4.1	2.2	4.8	1.4	.12	78	.80
10	4.5	6.7	54	6.5	4.4	2.8	2.2	4.3	54	.06	1,410	.74
11	1.4	6.4	19	6.5	4.1	2.6	2.2	4.7	46	.02	134	.74
12	6.7	5.7	10	6.5	4.0	2.2	2.2	4.7	6.7	.01	42	.74
13	5.7	5.4	1.4	6.5	2.6	2.2	3.4	4.0	4.5	.01	23	.74
14	4.5	5.4	5.7	6.5	2.8	2.6	46	4.5	4.4	0	12	.67
15	100	4.8	6.0	6.5	4.1	2.4	1.7	4.5	12	0	11	.58
16	19	4.8	6.4	1.0	4.1	2.6	61	4.1	7.4	274	7.4	.58
17	4.5	4.8	17	8.0	4.1	2.6	48	2.4	4.8	14	5.7	.84
18	1.0	4.4	108	40	4.1	2.6	14	2.0	4.7	4.0	5.7	1.4
19	6.0	4.0	40	50	4.0	2.8	20	2.0	2.8	2.0	4.8	1.4
20	5.7	4.0	15	50	4.5	2.2	46	1.2	2.4	1.0	4.4	1.0
21	5.1	4.4	12	40	4.0	2.0	41	1.8	2.0	.72	4.1	.74
22	4.8	4.4	9.0	20	2.4	2.2	177	1.4	1.8	.50	2.4	.66
23	4.5	4.4	9.0	14	2.6	2.0	124	12	1.6	1.6	2.4	54
24	5.1	4.4	9.0	9.4	2.6	2.4	29	1.0	2.2	86	6.1	16
25	5.1	4.0	9.0	9.5	4.1	2.8	15	20	4.4	62	2.8	4.9
26	5.7	4.4	15	9.9	5.1	4.0	14	9.9	1.8	141	2.0	2.1
27	8.4	4.1	9.0	11	6.4	4.4	14	5.4	1.4	41	2.0	2.2
28	6.0	2.8	8.4	9.0	6.0	4.1	14	4.0	1.2	11	2.2	1.9
29	5.7	4.0	1.4	9.5	4.0	2.4	11	4.1	.80	6.0	2.6	1.7
30	6.0	4.5	1.0	6.0	-------	2.4	9.9	4.4	.65	420	4.9	1.5
31	21	-------	6.5	1.4	-------	2.4	-------	14	-------	150	4.6	-------
TOTAL	1,080.20	240.4	446.2	497.7	111.1	94.8	424.1	300.9	190.15	1,086.73	2,458.5	110.60
MEAN	34.9	8.01	14.4	16.1	3.97	3.06	14.1	9.71	6.33	35.0	79.3	3.69
MAX	687	45	108	50	9.5	4.8	177	20	54	1,410	1,410	54
MIN	.27	2.8	1.4	6.0	2.4	2.0	1.8	1.2	.65	0	2.0	.58
AC-FT	2,150	476	885	987	220	188	841	597	377	2,150	4,880	219

CAL YR 1967: TOTAL 7,167.51 MEAN 19.6 MAX 800 MIN 0 AC-FT 14,220
WTR YR 1968: TOTAL 8,123.87 MEAN 22.2 MAX 1,410 MIN 0 AC-FT 16,110

PEAK DISCHARGE (BASE, 700 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	0200	11.04	1,570	7-31	0845	12.22	2,290
7-16	0615	11.45	1,820	8-02	1245	11.97	2,130
7-30	0800	11.86	2,070	8-10	0500	13.37	3,190

6-8910. Kansas River at Lecompton, Kans.

Location.--Lat 39°02'57", long 95°23'31", in NE¼SE¼ sec. 34, T. 11 S., R. 18 E., at downstream side of highway bridge at Lecompton, 0.6 mile downstream from Delaware River, Douglas County, and at mile 64.7.

Drainage area.--58,420 sq mi, approximately, of which a large area is noncontributing.

Records available.--January to November 1896 and April to July 1906 (gage heights only), March 1936 to September 1968. Records for April 1899 to December 1905 published in WSP 37, 39, 50, 52, 66, 75, 84, 99, 131, 172, and 796-B have been found to be unreliable and should not be used.

Gage.--Digital water-stage recorder. Datum of gage is 821.84 ft above mean sea level, datum of 1929. Prior to Mar. 16, 1936, staff gage and Mar. 16, 1936 to July 30, 1952, wire-weight gage and July 31, 1952 to Apr. 16, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--32 years (1936-68), 6,751 cfs (4,888,000 acre-ft per year).

Extremes.--Maximum discharge during year, 57,000 cfs Aug. 3 (gage height, 15.72 ft); minimum daily, 1,050 cfs July 22, 23.
1936-68: Maximum discharge, 483,000 cfs July 13, 1951 (gage height, 30.23 ft); from rating curve extended above 120,000 cfs on basis of slope-area measurement of peak flow; minimum daily, 185 cfs Oct. 13, 1956.
Maximum stage known since 1844, that of July 13, 1951.
Flood of May 31, 1903 (second highest since 1844), reached a stage of 27.9 ft, from floodmark.

Remarks.--Records good. Natural flow of stream affected by reservoirs in Colorado, Nebraska, and Kansas and by numerous diversions for irrigation above station. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8,220	4,730	2,910	2,500	3,340	2,060	2,960	2,650	4,560	2,550	23,300	4,790
2	7,320	4,440	2,990	2,500	2,920	2,080	2,980	2,540	4,500	2,470	25,000	4,760
3	6,800	5,100	3,110	2,300	2,530	2,060	3,410	2,450	3,890	2,340	49,500	4,690
4	6,440	5,290	2,960	2,400	2,430	2,000	3,460	2,370	3,450	2,260	31,300	4,910
5	6,220	4,800	2,900	2,500	2,340	1,960	3,270	2,290	3,270	2,220	17,200	8,240
6	6,500	4,640	2,860	2,300	2,240	1,980	2,480	2,350	3,150	2,410	14,100	5,290
7	25,100	4,500	2,830	2,200	2,180	1,990	2,370	2,570	3,070	2,420	9,190	4,150
8	43,800	4,370	2,830	2,300	2,120	1,970	2,620	2,920	3,050	2,520	5,600	3,950
9	38,800	4,230	2,800	2,400	2,080	1,650	2,520	3,120	3,010	2,370	14,700	3,940
10	23,700	3,660	3,120	2,500	2,070	1,390	2,300	3,030	3,060	2,690	34,300	4,080
11	14,800	3,400	3,220	2,500	1,970	1,290	2,370	2,720	5,430	2,530	43,800	4,010
12	11,200	3,290	3,080	2,500	1,950	1,240	2,470	2,350	3,730	2,270	28,700	3,650
13	8,460	3,200	2,970	2,400	1,930	1,200	2,150	2,420	2,900	2,190	17,400	3,580
14	7,680	3,180	2,880	2,400	1,880	1,170	2,300	2,460	3,390	2,170	13,800	3,540
15	10,900	3,280	2,800	2,300	2,010	1,170	3,180	2,810	5,430	2,160	11,000	3,510
16	12,500	2,910	2,590	2,300	2,030	1,180	2,490	3,130	8,060	6,870	9,410	3,530
17	10,800	2,700	2,470	2,400	1,960	1,140	4,560	2,350	7,120	8,410	8,890	3,670
18	9,320	2,610	3,040	2,400	1,930	1,160	4,870	2,280	6,530	7,540	8,500	3,870
19	7,410	2,550	4,070	2,400	2,050	1,230	2,830	2,170	6,320	3,810	8,760	3,520
20	6,610	3,070	3,350	2,600	2,120	1,220	3,440	2,080	6,110	2,310	8,060	3,490
21	6,110	3,410	2,960	2,700	2,010	1,200	3,040	2,080	5,730	1,340	8,030	3,520
22	6,300	3,400	2,750	2,800	2,050	1,170	3,920	2,130	5,390	1,050	14,200	3,570
23	7,320	3,380	2,680	3,000	2,170	1,160	7,890	2,510	5,060	1,050	14,400	4,340
24	6,440	3,370	2,900	3,100	2,170	1,160	5,980	3,440	4,420	4,730	10,800	6,650
25	5,320	3,360	2,860	3,170	2,180	1,200	4,180	4,860	4,050	33,700	6,330	6,130
26	6,610	3,290	2,700	3,250	2,250	1,740	3,780	5,460	3,740	27,700	3,660	4,660
27	5,620	3,230	2,780	3,670	2,250	2,610	3,550	4,570	3,090	20,200	3,000	3,910
28	4,850	3,210	2,810	3,170	2,200	2,740	3,110	4,000	2,850	10,500	3,580	3,730
29	3,690	3,090	2,720	2,840	2,110	2,760	2,690	3,700	2,720	5,650	3,570	3,640
30	3,940	2,940	2,730	2,800	------	2,800	2,760	3,480	2,510	9,480	3,760	3,790
31	4,470	------	2,480	2,590	------	2,770	------	3,540	------	18,700	4,300	------
TOTAL	333,150	108,690	90,150	81,190	63,470	52,450	100,130	90,830	129,590	198,610	458,140	129,110
MEAN	10,750	3,623	2,908	2,619	2,189	1,692	3,338	2,930	4,320	6,407	14,780	4,304
MAX	43,800	5,290	4,070	3,670	3,340	2,800	7,890	5,460	8,060	33,700	49,500	8,240
MIN	3,690	2,550	2,470	2,200	1,880	1,140	2,150	2,080	2,510	1,050	3,000	3,490
AC-FT	660,800	215,600	178,800	161,000	125,900	104,000	198,600	180,200	257,000	393,900	908,700	256,100

CAL YR 1967: TOTAL 2,420,746 MEAN 6,632 MAX 94,500 MIN 450 AC-FT 4,801,000
WTR YR 1968: TOTAL 1,835,510 MEAN 5,015 MAX 49,500 MIN 1,050 AC-FT 3,641,000

6-8915. Wakarusa River near Lawrence, Kans.

Location.--Lat 38°54'40", long 95°15'37", in NW¼ sec. 24, T. 13 S., R. 19 E., at downstream side of bridge on U.S. Highway 59, 4 miles south of Lawrence, Douglas County, and at mile 13.3.

Drainage area.--425 sq mi.

Records available.--April 1929 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 799.26 ft above mean sea level (levels by Kansas State Geological Survey). Prior to May 7, 1959, chain or wire-weight gages, and May 7, 1959 to Nov. 17, 1960, graphic water-stage recorder at same site and datum.

Average discharge.--39 years, 179 cfs (129,600 acre-ft per year).

Extremes.--Maximum discharge during year, 14,200 cfs Aug. 10 (gage height, 30.26 ft); 9.0 cfs July 14.
1929-68: Maximum discharge, 24,200 cfs July 12, 1951 (gage height, 31.59 ft, from floodmarks), from rating curve extended above 15,000 cfs by logarithmic plotting; no flow at times.
Maximum stage known since at least 1880, that of July 12, 1951.

Remarks.--Records good. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	229	53	85	157	68	38	167	449	17	3,350	76
2	16	401	68	85	232	64	42	151	183	16	2,760	76
3	13	540	111	76	178	60	115	136	133	15	7,080	74
4	12	740	262	76	137	58	328	119	103	14	7,280	59
5	11	315	133	79	118	57	189	110	86	13	1,350	54
6	73	205	104	75	104	56	124	101	75	14	401	51
7	1,270	167	89	74	94	56	103	114	66	14	263	49
8	4,280	146	80	65	91	58	91	149	59	13	220	48
9	1,820	132	75	62	91	59	80	139	54	13	6,190	43
10	247	125	83	65	89	58	72	107	49	12	13,100	39
11	142	119	188	66	84	56	67	95	55	11	8,240	37
12	108	111	160	66	81	53	65	90	515	10	1,960	36
13	89	101	116	68	74	49	62	85	111	9.7	748	34
14	74	94	92	68	96	48	70	90	68	9.2	534	32
15	1,030	89	75	68	73	46	80	91	104	9.7	509	31
16	2,400	87	68	67	66	46	88	79	331	1,140	397	30
17	698	84	78	68	65	45	185	65	264	779	325	29
18	241	80	131	187	65	47	390	57	121	441	277	31
19	163	77	460	661	66	52	193	50	79	121	278	32
20	128	73	348	770	68	56	189	46	60	51	219	30
21	109	71	201	516	68	55	320	44	48	34	174	31
22	99	69	173	406	68	49	492	54	39	26	146	34
23	87	68	145	260	63	46	5,150	215	33	21	133	32
24	83	67	137	206	62	44	1,980	409	29	35	124	198
25	79	65	150	166	64	43	595	839	28	1,680	111	181
26	79	61	176	147	73	42	390	1,260	28	6,900	98	93
27	83	57	171	136	81	42	289	457	25	7,210	85	48
28	81	53	150	133	85	42	235	215	23	1,870	74	37
29	98	51	130	130	74	41	204	163	21	282	87	32
30	150	52	120	126	------	38	183	129	19	2,820	96	28
31	142	------	110	118	------	38	------	242	------	5,610	89	------
TOTAL	13,923	4,529	4,437	5,175	2,667	1,572	12,409	6,068	3,258	29,210.6	56,698	1,605
MEAN	449	151	143	167	92.0	50.7	414	196	109	942	1,829	53.5
MAX	4,280	740	460	770	232	68	5,150	1,260	515	7,210	13,100	198
MIN	11	51	53	62	62	38	38	44	19	9.2	74	28
AC-FT	27,620	8,980	8,800	10,260	5,290	3,120	24,610	12,040	6,460	57,940	112,500	3,180

CAL YR 1967: TOTAL 138,152.59 MEAN 379 MAX 18,200 MIN .74 AC-FT 274,000
WTR YR 1968: TOTAL 141,551.6 MEAN 387 MAX 13,100 MIN 9.2 AC-FT 280,800

PEAK DISCHARGE (BASE, 2,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-08	1800	23.04	4,820	7-31	0200	26.54	7,240
10-16	1100	18.23	2,730	8-04	0900	27.59	8,380
04-23	1000	25.28	6,120	8-10	0400	30.26	14,200
07-26	2200	27.67	8,500				

6-8920. Stranger Creek near Tonganoxie, Kans.

Location.--Lat 39°06'59", long 95°00'39", on north line sec. 7, T. 11 S., R. 22 E., at downstream side of bridge on U.S. Highway 40, 2.0 miles upstream from Tonganoxie Creek, 4 miles east of Tonganoxie, Leavenworth County, and at mile 18.4.

Drainage area.--406 sq mi.

Records available.--April 1929 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 801.95 ft above mean sea level (levels by Corps of Engineers). April 30, 1929 to June 1, 1939, wire-weight or chain gage and June 2, 1939 to June 1, 1960, graphic water-stage recorder, both at site 1.3 miles downstream at datum 5.00 ft lower. June 2, 1960 to Sept. 30, 1960, graphic water-stage recorder at present site and datum.

Average discharge.--39 years, 201 cfs (145,500 acre-ft per year).

Extremes.--Maximum discharge during year, 5,530 cfs Aug. 2 (gage height, 23.09 ft); minimum, 1.7 cfs Oct. 5.
1929-68: Maximum discharge, 33,100 cfs July 12, 1951 (gage height, 27.64 ft, present site and datum), from rating curve extended above 16,000 cfs on basis of contracted-opening measurement of peak flow; maximum stage, 28.54 ft (present site and datum) Aug. 1, 1958; no flow at times many years.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	329	54	65	1,000	58	39	145	169	22	4,120	52
2	6.0	268	71	70	329	64	38	133	298	20	4,740	48
3	4.9	548	143	70	205	63	188	123	123	18	5,440	39
4	4.3	437	124	70	161	55	219	109	75	16	4,390	35
5	5.2	266	101	59	137	57	113	97	59	15	592	33
6	117	181	85	57	120	57	82	91	51	15	212	40
7	1,900	143	75	58	108	56	70	98	46	14	151	35
8	3,080	124	66	52	100	60	61	117	44	13	277	30
9	1,940	114	63	50	95	68	53	113	41	13	2,080	26
10	285	108	70	52	90	65	49	98	39	12	3,110	24
11	153	103	155	58	80	57	47	90	51	11	3,760	25
12	110	95	147	62	70	51	46	79	448	10	4,090	25
13	88	85	109	65	65	46	45	76	105	9.6	937	25
14	74	80	79	70	75	45	165	85	56	10	316	22
15	1,040	77	62	74	83	45	404	84	227	9.1	243	21
16	762	73	55	77	73	45	145	73	123	22	205	19
17	325	72	78	79	72	44	251	61	76	172	149	19
18	156	68	169	118	60	45	231	54	55	126	124	19
19	103	63	429	222	83	53	191	51	45	43	115	19
20	84	61	365	447	81	58	502	48	39	25	97	20
21	72	62	201	675	68	56	276	47	35	17	78	22
22	65	60	141	691	66	54	427	60	32	12	66	22
23	59	59	91	517	66	52	4,530	98	29	9.4	57	86
24	57	58	109	357	65	50	3,170	119	27	9.8	54	124
25	66	58	129	274	67	48	609	241	30	211	50	203
26	61	54	111	228	69	48	396	244	42	133	44	72
27	107	52	118	210	72	41	292	130	36	70	40	36
28	138	48	121	179	72	40	225	95	32	68	37	27
29	209	47	100	172	62	38	186	76	27	78	36	23
30	447	52	80	165	------	38	162	65	24	662	37	23
31	231	------	65	131	------	40	------	98	------	3,560	41	------
TOTAL	11,757.6	3,845	3,766	5,474	3,694	1,597	13,212	3,098	2,484	5,425.9	35,688	1,214
MEAN	379	128	121	177	127	51.5	440	99.9	82.8	175	1,151	40.5
MAX	3,080	548	429	691	1,000	68	4,530	244	448	3,560	5,440	203
MIN	4.3	47	54	50	60	38	38	47	24	9.1	36	19
AC-FT	23,320	7,630	7,470	10,860	7,330	3,170	26,210	6,140	4,930	10,760	70,790	2,410

CAL YR 1967 : TOTAL 129,686.4 MEAN 355 MAX 12,300 MIN 4.2 AC-FT 257,200
WTR YR 1968 : TOTAL 91,255.5 MEAN 249 MAX 5,440 MIN 4.3 AC-FT 181,000

PEAK DISCHARGE (BASE, 2,600 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-8	1300	18.83	3,120	8-02	2200	23.09	5,530
4-23	1500	22.08	4,850	8-12	1300	21.10	4,260

6-8924.9 Cedar Creek near Cedar Junction, Kans.

Location.--Lat 38°56'11", long 94°54'30", on east line sec. 12, T. 13 S., R. 22 E., at downstream side of county highway bridge, 3 miles southeast of Cedar Junction, Johnson County, 2.7 miles upstream from Camp Creek and at mile 6.3.

Drainage area.--38.9 sq mi.

Records available.--September 1965 to September 1968 (discontinued).

Gage.--Digital water-stage recorder. Altitude of gage is 796 ft (from topographic map). Prior to Oct. 21, 1965, graphic water-stage recorder at same site and datum.

Extremes.--Maximum discharge during year, 1,740 cfs Oct. 15 (gage height, 8.60 ft); no flow July 13-15.
1965-68: Maximum discharge, 5,800 cfs June 21, 1967 (gage height, 15.44 ft); no flow at times.

Remarks.--Records good except those for period of no gage height record, which are poor. Records of chemical analyses and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	138	8.5	7.4	30	4.2	2.5	14	24	.68	4.0	2.0
2	6.0	97	30	7.9	21	4.2	2.5	13	22	.68	75	1.4
3	3.8	201	64	6.4	25	3.7	35	14	18	.70	33	1.0
4	2.2	78	32	5.3	17	3.3	18	8.4	15	.70	10	.90
5	15	58	20	5.3	11	3.3	11	7.2	15	.70	5.0	.80
6	262	48	15	6.4	8.6	3.5	15	14	15	.61	2.0	.90
7	517	42	12	3.5	7.6	3.2	16	19	16	.59	1.0	.70
8	138	38	11	3.5	7.1	5.4	6.6	8.7	12	.32	2.0	.50
9	51	30	9.9	3.7	6.9	4.8	5.4	6.2	7.8	.23	26	1.0
10	30	33	7.9	3.5	6.6	3.2	4.5	4.9	4.5	.16	360	1.3
11	22	22	8.5	3.2	5.0	2.8	4.1	4.3	8.2	.13	60	1.3
12	25	20	9.0	3.2	4.6	2.7	3.8	4.3	8.3	.11	20	1.3
13	14	19	7.9	3.2	4.3	2.6	6.3	4.1	3.1	0	9.0	1.2
14	8.3	19	6.9	3.2	3.9	5.3	4.0	15	3.0	0	7.4	1.2
15	571	19	6.4	3.0	4.0	5.1	3.5	6.2	19	0	6.0	1.2
16	121	22	7.9	3.0	4.0	2.9	4.2	5.4	17	.26	5.2	1.3
17	48	16	19	7.4	3.6	2.6	37	3.2	8.3	1.4	4.5	1.3
18	32	13	14	30	3.3	2.7	27	2.9	3.5	2.8	9.0	1.6
19	29	14	11	27	3.2	8.2	25	2.4	2.8	2.8	6.0	1.9
20	19	13	13	21	3.9	4.2	34	2.1	2.3	.64	4.0	2.1
21	17	9.0	12	23	3.5	3.0	26	2.1	2.3	.51	1.5	1.9
22	22	8.5	7.9	18	3.3	2.8	172	10	2.1	.31	1.2	1.9
23	23	9.9	7.4	13	3.2	2.7	245	199	2.1	.19	1.0	1.9
24	77	9.0	8.5	8.5	3.3	2.3	66	48	2.1	.73	40	1.9
25	45	6.9	9.9	7.7	3.7	2.1	45	422	1.2	20	10	1.6
26	30	6.9	9.0	7.4	5.1	2.2	33	104	.60	15	3.5	1.4
27	59	6.4	9.9	7.7	4.8	2.4	26	57	.51	5.0	3.0	1.1
28	38	5.3	8.5	8.0	4.2	2.4	22	41	.50	2.0	2.0	.90
29	121	6.9	8.5	9.2	4.2	2.3	18	35	.50	.90	1.8	.80
30	367	9.0	9.0	8.4	------	2.8	17	28	.50	30	2.7	.80
31	210	------	8.5	12	------	2.9	------	28	------	10	3.0	------
TOTAL	2,927.9	1,017.8	413.0	280.0	215.9	105.8	935.4	1,133.4	237.21	98.15	718.8	39.10
MEAN	94.4	33.9	13.3	9.03	7.44	3.41	31.2	36.6	7.91	3.17	23.2	1.30
MAX	571	201	64	30	30	8.2	245	422	24	30	360	2.1
MIN	2.2	5.3	6.4	3.0	3.2	2.1	2.5	2.1	.50	0	1.0	.50
AC-FT	5,810	2,020	819	555	428	210	1,860	2,250	471	195	1,430	78

CAL YR 1967: TOTAL 19,386.61 MEAN 53.1 MAX 2,140 MIN 0 AC-FT 38,450
WTR YR 1968: TOTAL 8,122.46 MEAN 22.2 MAX 571 MIN 0 AC-FT 16,110

PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-07	1400	5.83	776	5-23	0745	6.62	1,050
10-15	1100	8.60	1,740	5-25	1130	6.51	1,010
10-29	2015	5.04	522	8-10	0900	7.11	1,220
04-22	2030	6.42	982				

6-8925. Kansas River at Bonner Springs, Kans.

Location.--Lat 39°03'37", long 94°52'21", SE¼SE¼ sec. 29, T. 11 S., R. 23 E., on left bank at downstream side of bridge on State Highway 7, 0.6 mile east of Bonner Springs, 0.9 mile downstream from Wolf Creek, Wyandotte County, and at mile 20.3.

Drainage area.--59,890 sq mi, approximately, of which a large area is noncontributing.

Records available.--July 1917 to September 1968. Monthly discharge only for some periods, published in WSP 1310.

Gage.--Digital water-stage recorder. Datum of gage is 741.06 ft above mean sea level, datum of 1929. July 9, 1917 to Apr. 23, 1934, chain gage, and Apr. 24, 1934 to Nov. 25, 1961, graphic water-stage recorder at site 0.5 mile upstream at datum 6.00 ft higher. Nov. 26, 1961 to Mar. 18, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--51 years, 6,574 cfs (4,759,000 acre-ft per year).

Extremes.--Maximum discharge during year, 73,500 cfs Aug. 3 (gage height, 15.35 ft); minimum, 999 cfs July 24.
1917-68: Maximum discharge, 510,000 cfs July 13, 1951 (gage height, 44.2 ft, from floodmarks, present site and datum), from rating curve extended above 230,000 cfs on basis of slope-area measurement of peak flow; minimum observed, 160 cfs Oct. 11, 1956.
Maximum stage known since at least 1844, that of July 13, 1951. Flood of June 1, 1903 (second highest since at least 1844), reached a stage of about 39.5 ft, from information by Corps of Engineers.

Remarks.--Records good except those for winter months, which are fair. Natural flow of stream affected by reservoirs in Colorado, Nebraska, and Kansas, and by numerous diversions for irrigation above station. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7,470	6,220	3,210	2,900	3,920	2,520	2,720	4,000	4,500	2,420	33,000	5,300
2	6,660	6,350	3,210	2,900	4,900	2,460	2,860	3,920	5,450	2,480	30,700	5,630
3	5,850	6,980	3,460	2,800	3,740	2,480	3,460	3,640	5,030	2,460	59,400	5,430
4	5,350	7,320	3,600	2,800	3,240	2,440	4,410	3,320	4,230	2,330	56,100	5,230
5	5,100	6,970	3,440	3,000	3,000	2,370	4,040	3,260	3,700	2,200	28,900	5,930
6	6,330	6,000	3,280	2,800	2,840	2,350	3,600	3,200	3,460	2,140	16,800	8,320
7	14,400	5,780	3,180	2,700	2,840	2,330	2,800	3,240	3,140	2,290	13,600	5,450
8	46,000	5,500	3,100	2,700	2,740	2,370	2,560	3,420	3,160	2,290	9,370	4,610
9	49,900	5,410	3,100	2,800	2,700	2,350	2,700	3,860	3,200	2,460	13,300	4,450
10	32,100	5,030	3,120	2,900	2,660	2,160	2,660	3,940	3,120	2,160	40,000	4,470
11	19,500	4,540	3,300	2,900	2,640	1,800	2,410	3,760	3,200	2,480	61,300	4,630
12	13,400	4,080	3,600	2,900	2,560	1,680	2,410	3,520	5,650	2,560	51,500	4,520
13	9,870	4,080	3,520	2,900	2,540	1,530	2,560	3,160	4,430	2,220	26,600	4,040
14	7,980	3,760	3,340	2,800	2,500	1,530	2,370	3,180	2,980	1,970	16,900	4,020
15	10,500	3,530	3,180	2,700	2,440	1,450	2,580	3,140	3,660	1,970	14,800	4,040
16	16,900	3,620	3,100	2,800	2,560	1,450	3,360	3,460	6,830	2,940	11,800	4,020
17	13,100	3,500	2,960	2,800	2,520	1,440	3,560	3,700	8,050	10,000	10,700	4,020
18	10,900	3,180	2,860	2,800	2,440	1,380	6,030	3,040	7,000	9,790	10,300	4,080
19	8,500	3,160	3,660	2,900	2,440	1,420	5,930	2,800	6,450	7,250	9,820	4,250
20	6,930	2,930	4,790	3,000	2,580	1,470	5,130	2,680	6,230	3,780	9,680	4,040
21	6,120	3,180	4,020	3,100	2,740	1,500	5,050	2,580	5,980	2,580	8,910	3,940
22	5,720	3,590	3,520	3,200	2,420	1,360	4,740	2,760	5,580	1,440	11,100	3,960
23	5,300	3,640	3,160	3,300	2,440	1,360	18,600	4,120	5,230	1,020	14,800	4,040
24	5,820	3,660	2,860	3,400	2,560	1,350	20,900	4,170	4,930	1,070	13,700	5,230
25	5,900	3,630	3,280	3,500	2,580	1,330	10,800	6,280	4,320	20,900	10,300	7,330
26	4,650	3,580	3,340	3,700	2,580	1,380	6,930	8,530	3,720	35,600	6,650	6,600
27	6,080	3,510	3,220	3,900	2,640	1,650	5,500	7,030	3,760	33,900	4,690	5,050
28	6,030	3,300	3,020	4,110	2,620	2,440	5,250	5,350	3,200	19,800	4,210	4,300
29	5,670	3,310	3,130	3,720	2,640	2,660	4,610	4,500	2,780	11,000	4,520	4,040
30	6,690	3,220	2,990	3,300	------	2,700	4,230	3,740	2,600	9,160	4,540	3,960
31	6,380	------	2,800	3,460	------	2,700	------	3,980	------	24,300	4,760	------
TOTAL	361,100	132,560	102,350	95,490	81,020	59,410	154,760	121,280	135,570	228,960	612,750	144,930
MEAN	11,650	4,419	3,302	3,080	2,794	1,916	5,159	3,912	4,519	7,386	19,770	4,831
MAX	49,900	7,320	4,790	4,110	4,900	2,700	20,900	8,530	8,050	35,600	61,300	8,320
MIN	4,650	2,930	2,800	2,700	2,420	1,330	2,370	2,580	2,600	1,020	4,210	3,940
AC-FT	716,200	262,900	203,000	189,400	160,700	117,800	307,000	240,600	268,900	454,100	1,215M	287,500

CAL YR 1967: TOTAL 3,022,384 MEAN 8,281 MAX 132,000 MIN 449 AC-FT 5,995,000
WTR YR 1968: TOTAL 2,230,180 MEAN 6,093 MAX 61,300 MIN 1,020 AC-FT 4,423,000

6-8930. Missouri River at Kansas City, Mo.

Location.--Lat 39°06'43", long 94°35'16", in sec. 32,T. 50 N., R. 33 W., on downstream side of right pier of Chicago, Burlington, & Quincy Railroad bridge at Kansas City, 1.4 miles downstream from Kansas River. River mile, 366.1.

Drainage area.--489,200 sq mi, approximately.

Records available.--October 1897 to September 1968. Prior to August 1928 monthly discharge only, published in WSP 1310. Gage-height records collected at same site 1873-99 are contained in reports of Missouri River Commission; those since 1900 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 716.40 ft above mean sea level, datum of 1929. Prior to Nov. 20, 1928, wire-weight gage, Nov. 20, 1938 to May 3, 1931, chain gage and May 4, 1931 to Aug. 23, 1934, water-stage recorder, at present site and datum. Aug. 24, 1934 to May 15, 1947, water-stage recorder at site 200 ft upstream at same datum. May 16, 1947 to Feb. 28, 1948, wire-weight gage at present site and datum.

Average discharge.--71 years (1897-1968), 54,160 cfs (39,210,000 acre-ft per year).

Extremes.--Maximum discharge during year, 120,000 cfs Aug. 11 (gage height, 15.35 ft); minimum, 9,810 cfs Jan. 7 (gage height, -1.57 ft).
1897-1968: Maximum discharge, 573,000 cfs July 14, 1951; maximum gage height, 36.2 ft July 14, 1951; minimum discharge, about 1,500 cfs Jan. 9, 10, 1937; minimum gage height, -2.91 ft, Jan. 29, 1966.
Maximum stage known, 38.0 ft June 16, 1844 (discharge, about 625,000 cfs, computed by Corps of Engineers).

Remarks.--Records good. Discharge measurements made 6 or more times a month during winter and 10 or more times monthly during rest of year. Flow partly regulated by many reservoirs above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46,800	51,000	31,800	18,800	30,500	27,000	41,600	42,000	40,800	42,700	78,400	42,400
2	45,700	48,700	30,500	18,800	31,500	27,600	42,000	42,000	44,200	44,200	78,800	42,700
3	45,400	49,800	28,900	17,900	37,800	28,200	43,800	41,600	43,100	43,500	88,800	42,400
4	43,500	51,000	28,900	10,800	48,000	28,600	45,700	40,100	42,000	41,600	94,000	42,000
5	43,500	49,100	29,200	11,800	50,600	32,900	46,500	40,100	40,100	41,200	72,400	44,200
6	50,200	47,600	28,900	11,900	29,900	32,900	47,200	40,100	38,600	39,700	56,800	50,200
7	62,800	47,200	28,900	10,500	28,600	29,600	44,600	40,500	37,800	39,000	54,400	45,400
8	97,500	46,100	29,200	12,200	28,200	30,800	42,400	41,200	37,800	38,200	50,600	42,000
9	100,000	44,600	28,900	12,500	27,900	31,500	43,100	43,800	37,800	39,400	49,800	40,100
10	80,600	43,800	29,600	12,200	28,200	29,200	42,000	45,700	39,400	40,500	92,200	40,100
11	64,400	43,500	29,900	11,500	30,200	27,300	41,200	44,200	43,800	41,200	118,000	40,100
12	56,000	42,400	28,900	13,300	30,800	27,300	40,500	43,100	52,100	39,000	102,000	40,500
13	51,400	42,400	28,900	16,300	30,800	27,600	42,700	42,000	51,700	39,000	72,800	38,600
14	46,100	43,500	28,900	17,300	30,200	27,300	45,000	42,000	48,000	40,100	59,600	38,200
15	52,100	43,100	27,900	17,900	29,200	26,600	45,700	43,100	45,000	40,800	55,200	38,200
16	62,400	43,100	27,000	18,400	27,900	26,300	45,400	43,500	45,000	44,200	51,700	39,000
17	57,600	43,800	26,600	18,400	27,300	26,300	45,400	42,700	46,500	72,800	51,000	39,400
18	54,800	43,800	26,600	18,200	27,900	26,000	45,000	43,800	46,100	57,200	52,800	40,800
19	51,400	43,800	27,000	18,600	27,600	27,000	45,400	42,400	45,400	50,200	49,100	44,200
20	47,600	43,100	28,900	21,100	25,600	29,600	47,200	40,800	44,600	47,600	49,500	43,500
21	46,100	41,600	28,900	24,400	23,800	31,800	48,400	40,500	42,000	46,100	49,100	41,600
22	45,400	42,400	27,600	26,300	23,500	34,300	47,200	40,800	41,200	43,100	48,000	39,700
23	44,200	43,100	27,000	27,900	26,000	37,800	68,100	42,400	40,800	42,700	52,800	39,400
24	45,000	42,700	26,600	28,900	26,300	39,700	75,800	41,200	41,600	45,700	51,400	39,000
25	44,600	43,500	23,200	32,900	24,400	40,800	65,200	43,800	42,700	56,800	47,600	41,600
26	44,200	44,200	19,400	35,400	24,100	39,700	58,000	47,200	48,000	75,800	45,000	42,400
27	46,800	43,100	18,800	30,800	25,600	38,200	53,200	46,800	58,800	71,900	42,700	42,000
28	48,700	40,100	22,200	35,400	26,300	39,000	48,000	47,600	68,100	63,200	41,600	40,800
29	48,700	35,700	24,400	34,600	26,300	39,400	46,100	45,400	51,700	51,000	46,500	39,400
30	52,100	32,900	21,600	40,100	------	40,800	43,100	42,000	43,100	46,500	45,400	39,400
31	52,400	------	19,600	28,900	------	41,600	------	39,700	------	63,600	43,500	------
TOTAL	1,678.0M	1,320.7M	834,700	654,000	855,000	992,700	1,435.5M	1,322.1M	1,347.8M	1,488.5M	1,891.5M	1,239.3M
MEAN	54,130	44,020	26,930	21,100	29,480	32,020	47,850	42,650	44,930	48,020	61,020	41,310
MAX	100,000	51,000	31,800	40,100	50,600	41,600	75,800	47,600	68,100	75,800	118,000	50,200
MIN	43,500	32,900	18,800	10,500	23,500	26,000	40,500	39,700	37,800	38,200	41,600	38,200
AC-FT	3,328M	2,620M	1,656M	1,297M	1,696M	1,969M	2,847M	2,622M	2,673M	2,952M	3,752M	2,458M

CAL YR 1967: TOTAL 17,587,000 MEAN 48,180 MAX 253,000 MIN 9,500 AC-FT 34,880,000
WTR YR 1968: TOTAL 15,059,800 MEAN 41,150 MAX 118,000 MIN 10,500 AC-FT 29,870,000

PEAK DISCHARGE, (BASE, 130,000 CFS).--NO PEAK ABOVE BASE.

M EXPRESSED IN THOUSANDS.

6-8933. Indian Creek at Overland Park, Kans.

Location.--Lat 38°56'30", long 94°40'10", on south line sec. 6, T. 13 S., R. 25 E., at downstream side of highway bridge on 103rd Street in Overland Park, Johnson County.

Drainage area.--37 sq mi, approximately.

Records available.--March 1963 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 856.88 ft above mean sea level (levels by Corps of Engineers). Prior to Nov. 17, 1963, graphic water-stage recorder at same site and datum.

Average discharge.--5 years, 24.9 cfs (18,030 acre-ft per year).

Extremes.--Maximum discharge during year, 2,690 cfs Oct. 5 (gage height, 8.18 ft); no flow at times.
1963-68: Maximum discharge, 5,250 cfs June 5, 1965 (gage height, 11.00 ft); no flow at times most years.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	107	12	7.2	53	5.3	3.1	9.4	12	.47	10	2.6
2	2.9	89	74	6.8	16	5.6	2.8	8.4	8.5	.28	185	2.0
3	2.7	156	43	6.3	12	5.2	92	9.2	7.3	.21	26	1.2
4	2.6	46	21	6.0	11	4.6	20	7.2	6.3	.02	10	1.3
5	626	35	16	5.6	10	4.6	10	6.1	4.9	0	6.5	.83
6	326	32	13	5.6	8.8	4.6	7.1	6.7	4.4	0	4.9	1.2
7	371	27	12	5.3	8.3	4.6	6.6	9.9	3.8	0	3.9	.96
8	77	24	11	6.0	7.3	6.0	5.7	9.6	3.2	0	4.4	.55
9	22	22	10	6.2	7.3	6.5	4.8	6.3	3.4	0	15	.45
10	16	21	11	6.3	7.3	5.1	4.6	5.3	4.6	0	138	.42
11	12	21	11	4.6	6.3	4.4	4.2	4.9	7.3	0	54	.42
12	11	18	11	4.9	6.0	3.9	4.4	4.6	3.9	0	14	.43
13	10	18	9.7	5.3	5.6	3.6	5.5	9.7	2.5	0	9.8	.50
14	8.6	18	8.9	5.3	5.6	3.6	5.7	16	10	0	7.5	.47
15	337	17	8.3	4.6	5.6	3.6	4.2	7.1	24	0	7.5	.30
16	51	16	8.3	3.9	5.6	3.6	12	5.6	12	6.7	6.2	.32
17	21	15	10	15	5.6	3.8	48	4.2	5.4	3.7	4.9	.40
18	17	14	18	33	5.3	8.5	15	3.8	4.2	2.3	11	.35
19	15	14	15	16	5.3	11	25	3.4	3.1	1.2	7.9	.17
20	14	14	10	14	5.6	5.5	25	2.7	2.4	.89	4.2	.29
21	12	13	10	13	5.6	4.2	12	2.7	1.4	.56	2.3	.26
22	10	12	9.2	12	4.9	3.5	208	32	1.5	.29	1.8	.56
23	8.8	12	7.9	10	4.9	3.1	147	166	1.2	.08	1.6	2.1
24	157	11	8.5	10	4.9	2.9	27	17	1.3	.40	49	2.2
25	20	11	10	7.3	5.6	2.9	22	256	1.1	383	6.9	1.4
26	55	11	8.2	7.5	6.3	2.7	19	34	.96	82	3.7	1.1
27	66	10	7.8	8.6	6.0	2.9	16	17	.96	24	3.7	.91
28	17	9.7	7.8	8.8	6.0	2.9	13	13	.99	7.1	2.8	.67
29	170	10	7.8	8.9	5.6	2.8	11	10	.67	4.5	2.1	.55
30	341	13	7.8	9.3	------	3.2	10	9.0	.54	62	3.4	.50
31	164	------	7.4	9.7	------	3.6	------	13	------	36	3.7	------
TOTAL	2,967.9	836.7	425.6	273.0	247.3	138.3	790.7	709.8	145.82	615.70	611.7	25.41
MEAN	95.7	27.9	13.7	8.81	8.53	4.46	26.4	22.9	4.86	19.9	19.7	.85
MAX	626	156	74	33	53	11	208	256	26	383	185	2.6
MIN	2.6	9.7	7.4	3.9	4.9	2.7	2.8	2.7	.54	0	1.6	.17
AC-FT	5,890	1,660	844	541	491	274	1,570	1,410	289	1,220	1,210	50

CAL YR 1967 : TOTAL 14,859.06 MEAN 40.7 MAX 1,810 MIN 0 AC-FT 29,470
WTR YR 1968 : TOTAL 7,787.93 MEAN 21.3 MAX 626 MIN 0 AC-FT 15,450

PEAK DISCHARGE (BASE, 2,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-5	1845	8.18	2,690				

6-9110. Marais des Cygnes River at Melvern, Kans.

Location.--Lat 38°30'54", long 95°41'29", in SW¼NW¼ sec. 6, T. 18 S., R. 16 E., at downstream side of bridge on U.S. Highway 75, 3 miles west of Melvern, Osage County, 6.5 miles upstream from Long Creek, and at mile 445.7.

Drainage area.--351 sq mi, approximately.

Records available.--September 1939 to September 1968. Prior to October 1948, published as Osage River at Melvern.

Gage.--Digital water-stage recorder. Datum of gage is 947.65 ft above mean sea level. Sept. 16, 1939 to Apr. 8, 1958, wire-weight gage and Apr. 9, 1958 to Aug. 25, 1963, graphic water-stage recorder, at site 4.4 miles downstream at datum 8.54 ft lower. Aug. 26, 1963 to Apr. 20, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--29 years, 188 cfs (136,100 acre-ft per year).

Extremes.--Maximum discharge during year, 11,500 cfs Oct. 8 (gage height, 27.00 ft); minimum, 3.4 cfs July 23.
1939-68: Maximum discharge, 68,500 cfs July 11, 1951 (gage height, 30.8 ft, from floodmarks, site and datum then in use), from rating curve extended above 19,000 cfs on basis of contracted-opening measurement of peak flow; no flow at times in most years.

Remarks.--Records good. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	114	40	74	72	31	20	75	690	16	76	13
2	23	234	48	77	68	29	19	65	196	14	70	11
3	19	428	353	59	78	26	156	56	131	13	2,020	11
4	15	612	148	56	69	23	608	47	99	11	678	11
5	13	211	95	51	58	23	153	43	81	10	193	10
6	68	144	75	47	52	21	91	37	77	9.0	117	9.5
7	3,050	121	65	42	44	21	67	50	74	8.0	83	25
8	8,880	112	57	40	40	22	54	66	64	7.0	62	19
9	3,180	109	52	35	37	22	44	58	58	7.0	54	14
10	430	97	51	34	36	23	37	46	59	8.5	64	11
11	254	94	57	37	35	22	33	43	68	17	325	9.5
12	189	85	85	40	33	21	29	37	565	14	160	8.0
13	154	79	78	37	31	20	27	34	134	6.6	78	7.5
14	132	74	62	39	29	20	27	118	111	7.5	56	7.5
15	1,420	68	50	37	28	20	23	78	137	6.6	81	7.0
16	2,410	67	43	36	29	19	23	44	207	83	57	6.2
17	488	65	52	43	27	17	28	31	405	23	44	6.6
18	256	62	156	101	27	19	35	25	183	12	87	6.6
19	177	58	543	305	27	21	46	22	113	8.0	137	6.2
20	143	56	278	408	27	21	69	19	81	6.2	57	7.0
21	125	53	151	224	28	21	137	19	61	5.4	29	8.5
22	112	52	121	174	28	21	313	1,060	45	5.0	21	7.5
23	100	51	100	140	28	20	3,240	2,200	35	4.2	18	8.5
24	96	51	95	112	28	18	828	1,480	33	3,360	20	9.0
25	89	50	113	95	28	17	288	2,640	31	3,240	16	40
26	84	46	143	85	30	17	174	2,560	28	2,540	14	62
27	78	43	127	83	32	16	131	635	23	2,930	14	34
28	74	41	101	81	34	15	111	285	20	478	13	21
29	75	40	90	80	34	16	97	187	19	222	12	15
30	81	40	85	77	------	26	86	141	17	150	14	11
31	86	------	83	75	------	27	------	688	------	102	14	------
TOTAL	22,334	3,357	3,597	2,824	1,117	655	6,994	12,889	3,845	13,324.0	4,684	423.1
MEAN	720	112	116	91.1	38.5	21.1	233	416	128	430	151	14.1
MAX	8,880	612	543	408	78	31	3,240	2,640	690	3,360	2,020	62
MIN	13	40	40	34	27	15	19	19	17	4.2	12	6.2
AC-FT	44,300	6,660	7,130	5,600	2,220	1,300	13,870	25,560	7,630	26,430	9,290	839

CAL YR 1967: TOTAL 75,012.31 MEAN 206 MAX 9,890 MIN 0 AC-FT 148,800
WTR YR 1968: TOTAL 76,043.1 MEAN 208 MAX 8,880 MIN 4.2 AC-FT 150,800

PEAK DISCHARGE (BASE, 5,300 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-8	1800	27.00	11,500				

6-9115. Salt Creek near Lyndon, Kans.

Location.--Lat 38°36'32", long 95°38'17", in SW¼SW¼ sec. 34, T. 16 S., R. 16 E., at downstream side of highway bridge, 2½ miles east of Lyndon, Osage County, and at mile 12.6.

Drainage area.--111 sq mi.

Records available.--September 1939 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 955.78 ft above mean sea level, datum of 1929. Prior to Nov. 25, 1957, wire-weight gage and Nov. 25, 1957 to Sept. 30, 1960, graphic water-stage recorder at same site and datum.

Average discharge.--29 years, 57.9 cfs (41,920 acre-ft per year).

Extremes.--Maximum discharge during year, 3,120 cfs July 25 (gage height, 9.78 ft); minimum, .70 cfs, Sept. 15.
1939-68: Maximum discharge, 36,400 cfs July 11, 1951 (gage height, 17.0 ft, from floodmark), from rating curve extended above 6,000 cfs on basis of slope-area measurement of peak flow; no flow at times.
Flood of 1935 reached a stage a few feet higher than that of July 11, 1951, from information by local residents.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	21	3.4	13	15	6.3	1.9	18	339	1.3	23	4.3
2	1.1	22	5.9	12	14	5.9	1.8	16	63	1.1	113	3.7
3	.56	77	58	12	13	5.1	21	15	38	.98	418	3.3
4	.50	70	45	9.2	12	4.3	76	12	26	.78	86	3.0
5	.39	34	23	8.1	10	4.0	35	11	21	.66	36	2.5
6	1.6	22	17	7.8	9.3	3.8	21	10	19	.60	22	1.9
7	586	17	15	6.4	8.5	3.8	16	15	17	.54	16	1.6
8	508	15	13	5.3	8.7	3.8	14	17	15	.48	12	1.4
9	53	12	12	4.8	8.1	3.4	12	17	18	.42	11	1.3
10	24	12	11	4.8	7.7	3.5	11	14	14	.48	381	1.1
11	15	11	11	4.8	7.2	3.8	9.5	12	20	.48	348	.96
12	11	10	15	5.5	6.4	3.7	8.6	11	31	.84	56	.86
13	8.0	9.3	17	5.5	5.7	3.1	8.4	25	16	2.4	30	.79
14	5.1	8.0	14	5.5	5.0	2.5	8.1	58	11	1.8	21	.76
15	473	7.6	11	5.5	4.5	2.4	7.3	30	21	1.2	19	.73
16	286	6.7	9.4	5.3	4.5	2.5	6.8	20	202	216	18	.78
17	50	6.6	12	8.0	4.5	2.7	15	15	53	25	14	.77
18	27	6.0	26	38	4.5	3.0	13	8.9	30	24	24	.80
19	18	5.3	78	81	4.5	4.4	11	6.8	18	9.7	24	.83
20	14	5.1	43	56	4.8	4.3	12	6.6	13	4.3	17	.84
21	12	5.0	28	43	5.3	3.5	13	5.9	9.7	2.4	11	.86
22	10	5.0	22	34	5.3	3.1	175	163	7.1	1.5	7.8	.82
23	8.8	4.7	18	28	5.2	2.8	956	1,170	5.1	1.1	6.1	.94
24	7.7	4.7	17	21	5.0	2.6	125	325	4.5	1,550	38	3.8
25	5.1	4.5	18	18	5.2	3.1	53	1,150	4.9	1,350	12	8.1
26	5.7	4.1	22	17	6.2	2.2	38	565	4.9	1,580	9.2	4.3
27	7.4	3.7	23	17	6.6	1.8	30	106	3.8	703	6.0	2.5
28	5.3	3.5	19	17	6.8	1.8	25	59	3.6	94	4.5	1.8
29	4.3	3.4	16	17	6.7	1.8	22	42	3.2	54	4.0	1.3
30	11	3.4	15	16	------	1.6	19	32	2.1	48	4.2	1.0
31	12	------	15	15	------	2.0	------	531	------	30	4.4	------
TOTAL	2,173.85	419.6	652.7	541.5	210.2	102.6	1,765.4	4,487.2	1,033.9	5,707.06	1,796.2	57.64
MEAN	70.1	14.0	21.1	17.5	7.25	3.31	58.8	145	34.5	184	57.9	1.92
MAX	586	77	78	81	15	6.3	956	1,170	339	1,580	418	8.1
MIN	.39	3.4	3.4	4.8	4.5	1.6	1.8	5.9	2.1	.42	4.0	.73
AC-FT	4,310	832	1,290	1,070	417	204	3,500	8,900	2,050	11,320	3,560	114

CAL YR 1967: TOTAL 11,197.27 MEAN 30.7 MAX 3,460 MIN 0 AC-FT 22,210
WTR YR 1968: TOTAL 18,947.85 MEAN 51.8 MAX 1,580 MIN .39 AC-FT 37,580

PEAK DISCHARGE (BASE, 3,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7-25	0400	9.78	3,120				

6-9119. Dragoon Creek near Burlingame, Kans.

Location.--Lat 38°42'30", long 95°50'20", in SE¼ sec. 27, T. 15 S., R. 14 E., 110 ft downstream from city of Burlingame pumping station and dam, 0.2 mile downstream from bridge on U.S. Highway 56, 2 miles downstream from Plum Creek and 3 miles south of Burlingame, Osage County.

Drainage area.--114 sq mi.

Records available.--March 1960 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,016.06 ft above mean sea level, datum of 1929. Prior to June 8, 1960, wire-weight gage at bridge 180 ft upstream at present datum. June 8, 1960 to Oct. 5, 1960, graphic water-stage recorder at present site and datum.

Average discharge.--8 years, 56.7 cfs (41,000 acre-ft per year).

Extremes.--Maximum discharge during year, 6,920 cfs Aug. 3 (gage height, 19.26 ft); minimum, 0.40 cfs, Oct. 5, 6.
1960-68: Maximum discharge, 10,500 cfs July 13, 1963 (gage height, 20.67 ft); no flow at times.
Maximum stage known since at least 1900, 23.4 ft June 26, 1946, from information by local residents.

Remarks.--Records good. Diversions above station for municipal supply of Burlingame.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.80	77	21	22	34	9.8	8.7	25	39	4.3	83	6.9
2	.80	42	55	22	38	9.8	8.7	21	29	3.5	2,120	7.3
3	.80	180	84	21	26	9.8	60	18	23	2.9	2,800	6.3
4	.80	62	35	16	24	8.7	44	19	19	2.4	112	5.4
5	.40	41	29	15	22	7.6	21	19	17	2.1	70	21
6	1.1	36	24	16	19	7.6	13	20	15	2.1	52	11
7	3,350	33	21	12	18	7.6	12	29	17	2.1	42	2.2
8	1,110	31	19	9.8	18	8.7	9.8	31	17	2.1	36	2.9
9	75	30	18	11	18	9.8	7.6	27	16	4.9	34	3.3
10	51	28	20	11	18	9.8	7.6	22	17	13	45	3.1
11	41	28	30	11	16	9.8	7.6	20	457	14	50	4.5
12	35	26	30	13	13	8.7	7.6	19	52	9.8	35	2.9
13	30	25	24	14	12	7.6	6.6	19	31	6.6	30	2.1
14	23	23	18	14	11	7.6	6.6	19	22	4.7	26	2.1
15	756	22	15	14	9.8	7.6	6.6	20	56	3.1	29	2.1
16	155	23	14	14	11	7.6	6.6	17	99	23	27	2.1
17	56	23	31	15	12	6.6	14	14	41	22	22	2.1
18	42	23	106	99	12	6.6	33	11	30	10	20	2.1
19	35	22	92	115	12	7.6	25	10	23	5.5	19	1.7
20	31	21	44	75	12	7.6	59	9.0	18	3.7	17	1.7
21	29	21	38	66	12	7.6	56	8.4	15	2.6	15	1.6
22	25	21	35	50	11	6.6	145	13	13	2.1	12	1.7
23	22	21	30	38	11	6.6	503	399	11	2.6	9.9	6.0
24	20	21	31	31	11	6.6	86	119	9.8	2,920	15	74
25	18	22	51	29	11	6.6	55	601	9.8	489	14	21
26	19	22	38	28	12	6.6	43	188	9.8	1,690	10	8.7
27	21	22	33	28	16	6.6	38	64	9.2	168	7.9	4.8
28	21	21	31	28	15	6.6	33	45	8.4	70	7.2	3.4
29	19	20	29	28	12	6.6	31	36	7.2	47	6.6	2.8
30	19	20	26	28	------	6.6	28	30	5.2	38	6.6	2.5
31	24	------	24	23	------	8.7	------	38	------	73	6.6	------
TOTAL	6,031.70	1,007	1,096	916.8	466.8	242.2	1,383.0	1,930.4	1,136.4	5,644.1	5,779.8	219.3
MEAN	195	33.6	35.4	29.6	16.1	7.81	46.1	62.3	37.9	182	186	7.31
MAX	3,350	180	106	115	38	9.8	503	601	457	2,920	2,800	74
MIN	.40	20	14	9.8	9.8	6.6	6.6	8.4	5.2	2.1	6.6	1.6
AC-FT	11,960	2,000	2,170	1,820	926	480	2,740	3,830	2,250	11,190	11,460	435

CAL YR 1967 : TOTAL 27,648.91 MEAN 75.8 MAX 4,860 MIN 0 AC-FT 54,840
WTR YR 1968 : TOTAL 25,853.50 MEAN 70.6 MAX 3,350 MIN .40 AC-FT 51,289

PEAK DISCHARGE (BASE, 1,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-07	1800	18.59	5,580	7-24	1700	17.08	4,130
10-15	1700	9.88	1,800	8-03	0100	19.26	6,920

6-9124.9 Pomona Reservoir near Quenemo, Kans.

Location.--Lat 38°38'51", long 95°33'50", in SE¼NE¼ sec. 19, T. 16 S., R. 17 E., in control tower at dam on Hundred and Ten Mile Creek, 5 miles northwest of Quenemo, Osage County.

Drainage area.--322 sq mi.

Records available.--April 1964 to September 1968.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (Corps of Engineers bench mark).

Extremes.--Maximum elevation during year, 982.03 ft, Aug. 3 (contents, 107,000 acre-ft); minimum 973.33 Sept. 30 (contents, 67,950 acre-ft).
1964-68: Maximum elevation, 986.82 ft, June 30, 1967 (contents, 133,100 acre-ft); minimum since conservation pool was first filled, 969.60 ft Mar. 29, 30, 1967 (contents, 54,260 acre-ft).

Remarks.--Reservoir is formed by compacted earth fill dam. Storage began Oct. 18, 1963. Total capacity, 502,600 acre-ft, consisting of the following: sedimentation, 28,000 acre-ft below elevation 960.5 ft; conservation pool, 42,600 acre-ft between elevations 960.5 and 974.0; flood control pool, 176,800 acre-ft between elevations 974.0 and 1,003.0 ft; and surcharge pool, 255,200 acre-ft between elevations 1,003.0 and 1,025.4 ft. Reservoir is used for flood control, conservation and recreation. Figures given herein represent elevations.

Capacity table (elevation, in feet, and contents, in acre-ft)

970	55,640	980	97,040
975	74,670	985	122,800

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73.90	75.97	73.99	74.35	74.35	73.96	73.59	74.00	77.19	73.84	79.20	74.12
2	73.88	75.95	74.08	74.30	74.22	73.96	73.60	74.04	77.02	73.82	80.60	74.08
3	73.86	75.97	74.17	74.24	74.14	73.95	73.78	74.23	76.84	73.79	82.02	74.07
4	73.85	75.88	74.20	74.18	74.06	73.95	73.80	74.23	76.64	73.77	81.84	74.03
5	73.85	75.75	74.22	74.14	73.98	73.96	73.81	74.20	76.26	73.75	81.38	73.99
6	73.92	75.61	74.24	74.09	73.93	73.96	73.80	74.23	75.59	73.73	80.65	73.95
7	75.40	75.45	74.24	74.02	73.92	73.90	73.82	74.27	74.91	73.70	79.86	73.91
8	76.58	75.30	74.24	73.98	73.92	73.83	73.81	74.28	74.38	73.68	79.10	73.89
9	76.67	75.16	74.26	73.99	73.91	73.83	73.81	74.28	73.90	73.68	79.56	73.84
10	76.66	74.99	74.28	73.99	73.91	73.81	73.80	74.28	73.71	73.66	79.84	73.81
11	76.60	74.82	74.30	74.02	73.90	73.80	73.79	74.27	73.95	73.65	79.98	73.77
12	76.50	74.65	74.31	74.03	73.90	73.78	73.78	74.25	73.99	73.63	80.07	73.72
13	76.43	74.49	74.32	74.03	73.89	73.74	73.79	74.37	73.98	73.60	80.10	73.68
14	76.33	74.33	74.31	74.03	73.89	73.73	73.77	74.40	74.09	73.58	79.97	73.64
15	77.01	74.15	74.30	74.04	73.89	73.74	73.75	74.41	74.43	73.65	79.50	73.99
16	77.23	74.04	74.29	74.04	73.89	73.72	73.80	74.39	74.64	74.46	78.80	73.58
17	77.19	74.04	74.33	74.09	73.88	73.71	73.84	74.36	74.68	74.65	78.00	73.54
18	77.12	74.05	74.45	74.20	73.88	73.76	73.83	74.34	74.70	74.66	77.24	73.49
19	77.04	74.04	74.59	74.38	73.88	73.77	73.87	74.29	74.68	74.65	76.41	73.45
20	76.95	74.06	74.65	74.50	73.87	73.76	73.91	74.25	74.59	74.50	75.56	73.41
21	76.85	74.05	74.69	74.60	73.87	73.73	73.97	74.22	74.48	74.30	74.75	73.40
22	76.76	74.05	74.64	74.68	73.87	73.72	74.87	74.39	74.38	74.15	74.29	73.37
23	76.66	74.05	74.60	74.72	73.86	73.68	75.70	75.56	74.27	74.15	74.21	73.46
24	76.59	74.04	74.58	74.75	73.88	73.66	75.82	75.79	74.21	75.70	74.31	73.48
25	76.47	74.04	74.56	74.78	73.90	73.66	75.68	77.04	74.15	76.71	74.30	73.48
26	76.40	74.03	74.53	74.80	73.92	73.65	75.39	77.40	73.97	79.04	74.27	73.46
27	76.29	74.02	74.52	74.84	73.94	73.65	75.11	77.51	73.90	79.45	74.24	73.42
28	76.18	74.00	74.48	74.87	73.95	73.64	74.78	77.48	73.88	79.54	74.20	73.39
29	76.14	74.00	74.44	74.84	73.96	73.64	74.46	77.33	73.86	79.45	74.18	73.36
30	76.07	73.99	74.41	74.66	------	73.63	74.13	77.16	73.85	79.54	74.17	73.33
31	76.01	------	74.38	74.50	------	73.62	------	77.31	------	79.36	74.14	------
MAX	77.23	75.97	74.69	74.87	74.35	73.96	75.82	77.51	77.19	79.54	82.02	74.12
MIN	73.85	73.99	73.99	73.98	73.86	73.62	73.59	74.00	73.71	73.58	74.14	73.33
(+)	78,910	70,560	72,130	72,620	70,440	69,090	71,120	84,570	70,000	93,980	71,160	67,950
(‡)	+8,670	-8,350	+1,570	+490	-2,180	-1,350	+2,030	+13,450	-14,570	+23,980	-22,820	-3,210

CAL YR 1967 ..... (‡) +14,730
WTR YR 1968 ..... (‡) -2,290

\+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
‡ CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 900 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.

6-9125. Hundred and Ten Mile Creek near Quenemo, Kans.

Location.--Lat 38°38'41", long 95°33'34", in NW¼SW¼ sec. 20, T. 16 S., R. 17 E., 800 ft downstream from outlet works of Pomona Dam, 4½ miles northwest of Quenemo, Osage County, and 7.7 miles upstream from mouth.

Drainage area.--322 sq mi.

Records available.--September 1939 to September 1968. Prior to October 1941, published as Dragoon Creek near Quenemo.

Gage.--Digital water-stage recorder. Datum of gage is 919.00 ft above mean sea level (Corps of Engineers bench mark at Pomona Dam). Prior to Sept. 5, 1940, wire-weight gage, and Sept. 5, 1940 to Aug. 3, 1959, graphic water-stage recorder, at site 0.3 mile upstream at datum 3.21 ft higher. Aug. 4, 1959 to Sept. 30, 1961, graphic water-stage recorder at site 3.0 miles downstream at datum 10.79 ft lower. Oct. 1, 1961 to Apr. 10, 1963, graphic water-stage recorder at site 0.9 mile downstream at datum 8.79 ft lower. Apr. 11, 1963 to July 2, 1963, graphic water-stage recorder at present site and datum. Auxiliary gages, generally wire-weight, have been operated to indicate slope since Oct. 1, 1951 on Marais des Cygnes River near Quenemo, or on Hundred and Ten Mile Creek at mile 0.7 or mile 4.7 and since Oct. 1, 1961 graphic water-stage recorder at mile 4.7.

Average discharge.--29 years, 163 cfs (118,000 acre-ft per year).

Extremes.--Maximum discharge during year, 2,410 cfs Mar. 8 (gage height, 11.89 ft from high water mark); no flow at times, Feb. 26-29.
1939-68: Maximum discharge, 38,600 cfs July 11, 1951 (gage height, 28.47 ft, site and datum then in use), from rating curve extended above 20,000 cfs on basis of slope-area measurement of peak flow; no flow at times in 1952-57, 1960, 1968.
Maximum stage known since at least 1919, that of July 11, 1951, from information by local resident.

Remarks.--Records good. Flow regulated by Pomona Reservoir (see station 6-9124.9). Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	238	32	136	436	26	29	328	493	27	685	51
2	19	274	35	134	361	28	22	50	493	27	850	51
3	19	433	32	134	218	28	18	53	493	27	970	51
4	19	433	32	134	215	28	17	50	490	26	976	51
5	19	433	35	134	215	28	17	50	880	27	1,360	51
6	19	430	35	134	110	28	18	50	1,530	28	2,070	51
7	25	430	35	134	34	28	21	50	1,510	28	2,050	51
8	21	430	35	101	34	226	26	50	1,170	22	2,020	51
9	21	430	35	22	34	32	26	50	970	22	934	52
10	55	427	35	22	35	34	26	51	463	22	59	53
11	180	424	34	22	35	31	26	52	39	22	55	53
12	235	424	34	22	31	28	24	51	39	22	53	53
13	238	424	34	21	26	28	24	52	39	22	45	53
14	240	421	34	21	24	28	26	51	39	22	304	53
15	253	421	34	21	24	27	26	52	40	22	1,120	53
16	245	253	34	20	24	27	26	52	39	22	1,780	53
17	243	32	34	20	24	27	26	50	39	22	1,960	53
18	243	32	34	20	24	27	26	50	40	22	1,950	52
19	240	32	34	21	24	27	27	49	94	22	1,940	51
20	240	32	34	21	22	27	29	49	198	22	1,910	52
21	240	32	80	21	23	28	30	49	198	280	1,740	52
22	243	32	139	21	23	28	42	50	198	400	943	53
23	235	32	139	21	17	28	34	58	195	200	195	53
24	230	32	139	21	.51	28	88	51	195	50	55	53
25	228	32	139	21	.35	28	469	58	195	50	52	53
26	225	32	137	21	.15	28	727	54	195	50	52	52
27	225	32	137	21	0	27	724	53	101	50	51	52
28	225	32	137	21	0	28	721	215	28	50	51	52
29	225	32	137	148	6.2	27	718	460	28	50	52	52
30	225	32	137	436	------	26	715	490	28	650	52	52
31	230	------	137	436	------	29	------	493	------	685	52	------
TOTAL	5,124	6,773	2,139	2,482	2,020.21	1,068	4,748	3,321	10,459	2,991	26,386	1,563
MEAN	165	226	69.0	80.1	69.7	34.5	158	107	349	96.5	851	52.1
MAX	253	433	139	436	436	226	727	493	1,530	685	2,070	53
MIN	19	32	32	20	0	26	17	49	28	22	45	51
AC-FT	10,160	13,430	4,240	4,920	4,010	2,120	9,420	6,590	20,750	5,930	52,340	3,100

CAL YR 1967 : TOTAL 54,265.54 MEAN 149 MAX 3,500 MIN .26 AC-FT 107,600
WTR YR 1968 : TOTAL 69,074.21 MEAN 189 MAX 2,070 MIN 0 AC-FT 137,000

6-9135. Marais des Cygnes River near Ottawa, Kans.

Location.--Lat 38°37'00", long 95°15'25", in SW¼NE¼ sec. 36, T. 16 S., R. 19 E., on right bank at sewage disposal plant in Ottawa, Franklin County, 0.9 mile downstream from Main Street Bridge, 1.9 miles downstream from Eightmile Creek, and at mile 398.9.

Drainage area.--1,250 sq mi, approximately.

Records available.--August 1902 to October 1905, October 1918 to September 1968. Published as Osage River at Ottawa 1902-5, and as Osage River near Ottawa 1918-47.

Gage.--Digital water-stage recorder. Datum of gage is 857.68 ft above mean sea level, datum of 1929. Aug. 26, 1902 to Oct. 31, 1905, wire-weight, staff, or chain gages at Main Street Bridge in Ottawa at different datums. Oct. 27, 1918 to Sept. 4, 1962, graphic water-stage recorder at Seventh Street Bridge, 0.9 mile downstream at datum 0.47 ft higher. Sept. 5, 1962 to Apr. 24, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--52 years (1902-5, 1919-68), 608 cfs (440,200 acre-ft per year).

Extremes.--Maximum discharge during year, 8,200 cfs Aug. 10 (gage height, 24.41 ft); minimum, 41 cfs July 13.
1902-5, 1918-68: Maximum discharge, 142,000 cfs July 11, 1951 (gage height, 42.50 ft, site and datum then in use), from rating curve extended above 44,000 cfs on basis of slope-area measurement of peak flow; no flow at times in 1920, 1930-34, 1936, 1937, 1939-41.
The flood of 1951 is the highest known since Ottawa was settled (about 1864) according to information reported in "Climate of Kansas - 1948". Flood of June 13 or 14, 1844, reached a stage of about 1½ ft lower than that in 1951 according to same information.

Remarks.--Records good. Natural flow of stream affected by Pomona Reservoir (see station 6-9124.9). Records of chemical analyses and water temperatures for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	978	119	290	590	86	149	910	2,290	63	1,130	142
2	93	821	241	290	601	102	116	347	1,550	59	2,540	130
3	72	1,450	419	260	491	102	355	415	980	56	2,930	118
4	61	1,580	335	240	408	99	1,190	330	835	53	3,070	108
5	55	1,250	480	230	393	94	895	212	760	51	1,890	102
6	57	857	327	210	364	92	433	183	1,450	49	2,030	98
7	852	512	259	200	198	91	286	191	1,640	48	2,110	94
8	3,980	201	218	190	145	123	219	217	1,580	46	2,060	88
9	5,430	198	193	180	136	320	176	221	1,200	45	4,430	96
10	5,440	368	178	124	134	95	148	208	1,120	100	7,350	93
11	1,160	604	173	116	129	91	132	184	304	53	5,210	88
12	567	588	173	117	125	84	121	170	155	44	3,350	84
13	494	569	185	114	113	82	111	162	531	47	1,060	81
14	436	555	188	117	104	83	101	193	264	49	600	77
15	1,360	544	164	114	107	75	98	293	726	44	1,190	77
16	3,880	535	149	111	99	74	103	247	1,120	184	1,740	78
17	3,160	317	154	113	99	76	158	172	989	463	2,070	75
18	1,020	170	186	183	99	78	184	140	739	198	2,440	74
19	680	161	338	332	99	79	214	120	406	111	3,330	72
20	566	153	715	510	99	79	270	110	381	80	2,420	73
21	507	148	492	598	97	83	258	105	382	407	2,080	72
22	465	143	397	501	99	81	496	126	338	421	1,700	74
23	429	140	364	411	98	81	4,380	3,740	306	222	784	77
24	389	137	341	335	94	84	4,390	4,530	294	128	1,220	77
25	377	133	336	294	80	80	1,650	4,580	295	3,950	734	73
26	374	129	346	258	79	80	1,230	6,390	290	5,990	303	72
27	363	124	404	238	86	78	1,130	4,730	282	6,330	197	114
28	357	118	380	232	87	75	1,050	1,420	136	5,370	158	112
29	427	118	343	229	86	73	996	1,080	78	1,360	142	94
30	734	118	321	476	------	75	962	999	68	2,360	142	85
31	835	------	309	600	------	163	------	1,120	------	2,210	148	------
TOTAL	34,745	13,719	9,227	8,213	5,339	2,958	22,001	33,845	21,489	30,591	60,558	2,698
MEAN	1,121	457	298	265	184	95.4	733	1,092	716	987	1,953	89.9
MAX	5,440	1,580	715	600	601	320	4,390	6,390	2,290	6,330	7,350	142
MIN	55	118	119	111	79	73	98	105	68	44	142	72
AC-FT	68,920	27,210	18,300	16,290	10,590	5,870	43,640	67,130	42,620	60,680	120,100	5,350

CAL YR 1967: TOTAL 254,667 MEAN 698 MAX 18,500 MIN 13 AC-FT 505,100
WTR YR 1968: TOTAL 245,383 MEAN 670 MAX 7,350 MIN 44 AC-FT 486,700

PEAK DISCHARGE (BASE, 7,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8-10	0400	24.41	8,200				

6-9140. Pottawatomie Creek near Garnett, Kans.

Location.--Lat 38°20'01", long 95°14'55", in SW¼SW¼ sec. 6, T. 20 S., R. 20 E., at upstream side of bridge on U.S. Highway 59, 0.6 mile downstream from confluence of North Pottawatomie and Cedar Creeks, 0.2 mile upstream from Atchison, Topeka and Santa Fe Railway Co. bridge, 4 miles north of Garnett, Anderson County, and at mile 40.7.

Drainage area.--334 sq mi.

Records available.--October 1939 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 873.23 ft above mean sea level, datum of 1929. Prior to Mar. 27, 1952, wire-weight gage and Mar. 27, 1952 to Jan. 17, 1958, graphic water-stage recorder (high water only) and wire-weight gage, at site 50 ft upstream at present datum. Jan. 18, 1958 to May 14, 1958, wire-weight gage and May 15, 1958 to Nov. 15, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--29 years, 208 cfs (150,600 acre-ft per year).

Extremes.--Maximum discharge during year, 5,080 cfs Aug. 11 (gage height, 24.70 ft); minimum, 0.90 cfs, July 11-15.
1939-68: Maximum discharge, 57,000 cfs Sept. 13, 1961 (gage height, 35.38 ft); no flow at times in most years.
Maximum stage known since at least 1858 or 1844, from information by local newspaper, that of Sept. 13, 1961. Flood in July 1951 reached a stage of 32.30 ft (discharge, 45,300 cfs), and that of November 1928 reached a stage of 32.2 ft from floodmark (discharge, 44,000 cfs).

Remarks.--Records good. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	2,050	27	31	44	20	36	49	89	4.3	33	28
2	24	682	44	29	122	19	37	42	171	3.8	23	24
3	18	1,210	188	25	107	17	1,610	51	88	3.6	17	17
4	15	815	208	21	72	15	2,550	45	56	3.5	13	14
5	13	274	139	19	52	14	345	31	40	3.2	9.7	12
6	29	176	108	18	42	13	166	27	31	2.5	8.2	10
7	1,470	135	79	16	36	13	124	30	34	1.4	6.5	8.2
8	2,350	112	64	15	32	13	98	52	35	1.2	5.3	6.7
9	409	96	54	14	30	13	77	47	26	1.1	2,390	5.3
10	149	86	49	14	27	12	62	41	31	1.0	3,240	4.2
11	104	78	47	14	25	12	54	33	30	1.0	3,790	3.9
12	70	71	47	15	24	12	47	28	26	.90	2,760	3.4
13	52	65	46	15	22	11	42	26	25	.90	362	2.7
14	43	58	41	14	20	10	38	28	22	.90	166	2.3
15	1,050	53	34	12	18	9.2	34	29	19	.90	286	2.0
16	3,250	50	30	12	18	8.7	32	27	126	1.8	176	1.9
17	547	47	31	12	18	8.2	101	24	549	1.7	89	1.9
18	180	44	36	19	18	7.6	123	20	190	17	1,270	1.6
19	120	41	54	34	18	7.8	74	17	97	19	1,660	1.5
20	89	39	66	50	18	8.3	395	14	51	15	262	1.4
21	71	37	61	60	20	12	204	12	32	16	125	1.5
22	58	37	52	62	18	17	158	357	23	8.2	70	1.5
23	46	34	45	62	17	15	1,830	1,000	17	5.0	44	1.8
24	45	33	40	56	17	15	569	302	13	32	842	2.3
25	40	31	40	46	17	14	187	1,940	11	443	621	2.3
26	37	30	42	40	17	13	135	3,560	10	2,370	151	2.2
27	36	28	43	37	17	11	103	591	8.4	3,060	77	2.1
28	35	26	43	36	20	10	79	202	7.0	305	46	1.9
29	35	25	39	36	21	9.8	65	137	5.9	108	34	1.9
30	370	26	36	36	------	25	55	100	4.7	68	30	2.4
31	1,600	------	34	36	------	42	------	76	------	46	30	------
TOTAL	12,390	6,489	1,867	906	927	427.6	9,430	8,938	1,888.0	6,545.90	18,636.7	171.9
MEAN	400	216	60.2	29.2	32.0	13.8	314	288	62.9	211	601	5.73
MAX	3,250	2,050	208	62	122	42	2,550	3,560	569	3,060	3,790	28
MIN	13	25	27	12	17	7.6	32	12	4.7	.90	5.3	1.4
AC-FT	24,580	12,870	3,700	1,800	1,840	848	18,700	17,730	3,740	12,980	36,970	341

CAL YR 1967 : TOTAL 98,806.25 MEAN 271 MAX 25,800 MIN 0 AC-FT 196,000
WTR YR 1968 : TOTAL 68,617.10 MEAN 187 MAX 3,790 MIN .90 AC-FT 136,100

PEAK DISCHARGE (BASE 10,000 CFS).--NO PEAK ABOVE BASE.

6-9150. Big Bull Creek near Hillsdale, Kans.

Location.--Lat 38°38'12", long 94°53'29", in SW¼SE¼ sec. 20, T. 16 S., R. 23 E., on right bank 1.0 mile upstream from Ten Mile Creek, 3 miles southwest of Hillsdale, Miami County, and 16.2 miles upstream from mouth.

Drainage area.--147 sq mi.

Records available.--July 1958 to September 1968. Records for 1949 to 1953 published in WSP 1146, 1176, 1210, 1240, and 1280 have been found to be unreliable and should not be used.

Gage.--Digital water-stage recorder. Datum of gage is 854.49 ft above mean sea level, datum of 1929. Auxiliary digital water-stage recorder 1,850 ft downstream from base gage. Datum of auxiliary gage is 848.49 ft above mean sea level, datum of 1929. Prior to July 29, 1958 graphic water-stage recorder and wire-weight gage operated at auxiliary gage site. All records from this site were later discredited. July 29, 1958 to March 17, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--10 years, 87.4 cfs (63,270 acre-ft per year).

Extremes.--Maximum discharge during year, 2,280 cfs May 25 (gage height, 9.86 ft); minimum, .10 cfs July 9-13.
1958-68: Maximum discharge, 39,600 cfs Sept. 13, 1961 (gage height, 20.85 ft); no flow at times in 1959-64, 1966-67.
Maximum stage known since 1910, 21.2 ft July 11, 1951, present site and datum, (discharge, 45,200 cfs, on basis of slope-area measurement of peak flow).

Remarks.--Records good. Some diversions above station for irrigation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	347	13	18	49	13	8.5	32	42	1.3	42	9.6
2	2.9	182	80	17	33	12	7.4	27	39	1.1	909	8.0
3	2.0	596	188	16	30	11	457	24	30	.60	336	7.1
4	1.5	195	88	13	25	11	219	23	25	.60	83	6.0
5	1.5	108	62	12	21	9.7	85	20	18	.60	38	4.5
6	16	80	47	13	19	9.6	59	18	14	.60	19	3.9
7	293	52	44	12	17	9.6	47	20	11	.60	11	3.6
8	355	44	38	12	16	11	36	23	10	.60	39	4.0
9	73	41	35	12	16	10	26	18	9.0	.37	491	3.4
10	35	36	35	9.1	16	12	27	15	7.9	.10	846	2.6
11	25	35	33	8.7	14	12	25	14	7.4	.10	525	1.5
12	25	29	33	8.7	13	9.9	23	12	6.8	.10	138	1.2
13	20	25	29	9.9	12	9.0	21	12	5.6	.11	70	1.1
14	10	24	25	8.5	12	8.0	21	14	20	.27	47	1.1
15	425	22	22	8.2	12	6.8	18	14	45	.34	59	1.1
16	349	18	21	7.9	12	6.8	29	11	47	1.2	38	1.1
17	76	17	25	14	12	6.8	503	8.5	38	2.1	22	.92
18	40	16	33	85	12	7.8	129	6.7	18	1.5	107	.75
19	25	15	50	111	12	14	91	5.1	12	1.6	81	.75
20	20	13	42	75	13	14	194	4.1	8.0	1.9	32	.75
21	16	13	32	70	12	12	95	3.5	6.5	2.0	15	.75
22	14	13	27	66	12	9.7	218	5.2	4.6	1.7	11	.83
23	11	13	21	49	11	8.5	786	811	3.8	1.3	7.4	1.4
24	33	13	21	37	10	7.9	173	224	3.0	1.4	37	2.7
25	82	12	26	32	11	7.9	103	1,360	2.9	1.5	74	2.1
26	30	11	26	30	13	7.9	80	448	2.3	4.8	21	1.7
27	30	9.6	26	30	14	7.9	64	149	2.1	9.3	13	1.3
28	35	8.5	22	30	14	7.9	51	98	1.8	12	9.5	1.3
29	88	8.5	21	34	13	7.9	44	72	1.8	6.6	8.8	1.1
30	750	10	20	33	------	7.9	37	59	1.8	709	8.5	1.1
31	582	------	20	30	------	9.2	------	47	------	213	8.9	------
TOTAL	3,470.5	2,006.6	1,205	912.0	476	298.7	3,676.9	3,598.1	444.3	978.29	4,147.1	77.25
MEAN	112	66.9	38.9	29.4	16.4	9.64	123	116	14.8	31.6	134	2.58
MAX	750	596	188	111	49	14	786	1,360	47	709	909	9.6
MIN	1.5	8.5	13	7.9	10	6.8	7.4	3.5	1.8	.10	7.4	.75
AC-FT	6,880	3,980	2,390	1,810	944	592	7,290	7,140	881	1,940	8,230	153

CAL YR 1967: TOTAL 42,649.64 MEAN 117 MAX 6,690 MIN 0 AC-FT 84,590
WTR YR 1968: TOTAL 21,290.74 MEAN 58.2 MAX 1,360 MIN .10 AC-FT 42,230

PEAK DISCHARGE (BASE, 2,500 CFS).--NO PEAK ABOVE BASE.

6-9165. Big Sugar Creek at Farlinville, Kans.

Location.--Lat 38°14'07", long 94°51'13", in SE¼ sec. 11, T. 21 S., R. 23 E., at downstream side of bridge on State Highway 7 at Farlinville, Linn County, 5.2 miles upstream from Richland Creek, 14.0 miles upstream from Little Sugar Creek, and 21.1 miles upstream from mouth.

Drainage area.--198 sq mi.

Records available.--February 1929 to June 1932, November 1948 to September 1958, July 1959 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 784.25 ft above mean sea level, datum of 1929. Feb. 21, 1929 to June 30, 1932, chain gage at site 100 ft downstream at datum 0.72 ft higher. Nov. 8, 1948 to June 2, 1952, wire-weight gage and June 3, 1952 to Sept. 30, 1958, graphic water-stage recorder at site 100 ft downstream at present datum. Oct. 1, 1958 to Nov. 13, 1963, graphic water-stage recorder at present site and datum.

Average discharge.--20 years (1929-31, 1949-58, 1959-68), 115 cfs (83,260 acre-ft per year).

Extremes.--Maximum discharge during year, 4,040 cfs May 25 (gage height, 23.08 ft); minimum, .58 cfs Aug. 9.
1929-32, 1948-68: Maximum discharge, 41,000 cfs, June 21, 1967 (gage height, 30.45 ft), from rating curve extended above 10,000 cfs on basis of contracted-opening measurement at 29.9 ft; no flow at times.
Maximum stage known since at least 1875, about 31 ft (present datum) in 1898, from information by local resident. Flood of Nov. 17, 1928, reached a stage of about 30 ft (present datum), from floodmarks.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	1,360	31	26	110	20	52	27	88	1.8	4.4	22
2	13	342	38	24	110	19	44	24	106	1.9	3.5	19
3	9.0	797	154	23	68	17	132	582	64	1.9	2.7	15
4	6.8	361	140	21	56	15	241	115	47	1.9	2.1	12
5	5.1	190	109	19	48	15	102	60	38	1.9	1.7	10
6	224	146	79	18	44	14	75	44	31	1.9	1.2	9.0
7	1,490	126	66	18	40	13	62	46	26	1.8	.97	7.8
8	989	113	56	16	37	13	52	90	22	2.5	.84	6.6
9	224	100	51	15	34	12	45	61	96	1.7	2.2	5.6
10	134	93	51	15	34	12	40	44	44	1.5	269	4.9
11	93	85	52	15	32	12	37	40	34	1.5	957	4.2
12	72	75	56	16	29	12	33	41	28	1.4	410	4.0
13	61	66	51	16	26	10	32	35	23	1.2	92	3.6
14	51	61	42	14	24	9.4	32	41	16	1.0	436	3.5
15	166	56	38	13	23	8.7	28	54	14	1.1	2,080	2.9
16	621	53	34	12	23	8.4	25	85	15	1.2	186	2.7
17	148	51	35	13	23	7.1	26	45	19	1.1	76	2.5
18	104	47	41	20	22	7.4	29	34	23	1.4	666	2.2
19	79	43	47	36	21	109	27	26	20	1.4	609	2.2
20	64	41	47	41	20	142	28	21	14	1.2	130	2.2
21	55	40	44	47	21	83	27	18	10	1.0	72	2.1
22	47	39	41	51	21	61	28	788	8.4	.97	45	1.9
23	41	37	36	46	19	51	172	1,130	6.8	.90	32	2.5
24	38	36	33	41	17	43	117	278	5.8	.90	348	4.0
25	38	34	34	34	18	40	68	2,180	5.1	1.1	265	3.6
26	40	33	34	30	20	37	54	2,140	4.4	11	82	3.1
27	41	30	33	29	21	34	45	395	3.6	109	45	2.7
28	38	28	31	30	23	31	39	192	3.3	30	31	2.5
29	35	26	30	31	22	30	34	137	2.9	12	25	2.2
30	773	27	30	37	------	86	30	104	2.4	7.8	22	1.9
31	2,480	------	28	46	------	83	------	88	------	5.8	22	------
TOTAL	8,198.9	4,536	1,592	813	1,006	1,055.0	1,756	8,965	820.7	211.77	6,919.61	168.4
MEAN	264	151	51.4	26.2	34.7	34.0	58.5	289	27.4	6.83	223	5.61
MAX	2,480	1,360	154	51	110	142	241	2,180	106	109	2,080	22
MIN	5.1	26	28	12	17	7.1	25	18	2.4	.90	.84	1.9
AC-FT	16,260	9,000	3,160	1,610	2,000	2,090	3,480	17,780	1,630	420	13,720	334

CAL YR 1967: TOTAL 55,102.79 MEAN 151 MAX 16,400 MIN .47 AC-FT 109,300
WTR YR 1968: TOTAL 36,042.38 MEAN 98.5 MAX 2,480 MIN .84 AC-FT 71,490

PEAK DISCHARGE (BASE, 3,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
5-25	2200	23.08	4,040	8-15	0400	21.09	3,450

6-9166. Marais des Cygnes River near Kansas-Missouri State line, Kans.

Location.--Lat 38°13'21", long 94°40'04", in NE¼NW¼ sec. 16, T. 21 S., R. 25 E., on right bank 1.7 miles downstream from Big Sugar Creek, 6.8 miles upstream from Kansas-Missouri State line, Linn County, and at mile 313.5.

Drainage area.--3,230 sq mi, approximately.

Records available.--October 1958 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 757.06 ft above mean sea level, datum of 1929. Prior to Jan. 15, 1959, wire-weight gage 6.8 miles downstream at datum 15.62 ft lower. Jan. 15, 1959 to Sept. 28, 1960, graphic water-stage recorder at present site and datum.

Average discharge.--10 years, 1,654 cfs (1,197,000 acre-ft per year).

Extremes.--Maximum discharge during year, 15,800 cfs May 26 (gage height, 24.61 ft); minimum, 47 cfs July 16.
1958-68: Maximum discharge, 57,400 cfs Sept. 16, 1961 (gage height, 33.93 ft); no flow at times in 1963-64.
Flood of July 14, 1951, reached a stage of 41.2 ft, from floodmark (discharge, 148,000 cfs, from rating curve extended above 110,000 cfs on basis of velocity-area study). Flood of Nov. 18, 1928, reached a stage about 3.7 ft lower (discharge, 106,000 cfs).

Remarks.--Records good. Natural flow of stream affected by Pomona Reservoir operation (see station 6-9124.9), retention of overbank flow in wildlife refuge ponds (capacity, 5,500 acre-ft) and by numerous small diversions for irrigation above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	540	8,330	338	580	1,150	240	732	1,520	2,080	129	4,900	402
2	374	6,760	378	500	1,460	252	640	1,430	2,870	109	2,000	390
3	252	5,790	640	450	1,330	243	708	1,890	2,810	92	4,050	346
4	188	5,850	1,690	450	1,240	243	4,720	2,060	1,780	80	5,880	298
5	205	5,230	1,780	460	1,030	243	5,910	1,310	1,400	80	3,910	255
6	402	3,460	1,590	450	906	231	4,500	836	1,230	78	2,790	225
7	1,810	2,220	1,220	400	794	219	1,790	640	1,440	71	1,990	200
8	3,200	1,800	990	422	666	216	1,230	836	1,870	64	2,190	185
9	5,880	1,600	822	378	490	219	990	938	1,990	60	2,230	168
10	7,080	1,470	1,690	402	442	330	787	744	1,880	57	5,510	155
11	6,960	1,400	1,180	358	418	362	655	635	1,550	58	11,100	148
12	4,620	1,330	913	298	398	219	570	575	1,100	83	13,500	140
13	1,310	1,250	756	280	362	198	510	525	450	95	13,400	135
14	968	1,180	655	280	342	185	478	506	474	68	11,500	125
15	857	1,130	605	278	318	178	446	530	550	53	6,340	117
16	3,600	1,090	545	270	298	170	398	625	650	51	2,950	111
17	6,850	1,060	506	264	298	168	1,110	630	1,670	68	2,480	105
18	7,510	974	515	294	290	173	2,910	474	2,000	346	2,720	101
19	4,110	625	570	468	282	470	1,500	370	1,630	418	5,430	99
20	1,500	520	690	829	278	808	1,230	298	1,040	246	6,520	99
21	1,170	490	1,120	1,040	278	570	1,930	255	640	163	5,700	97
22	1,000	474	1,180	1,210	278	446	1,590	1,360	575	138	3,150	93
23	857	454	920	1,240	267	390	3,660	4,650	490	406	2,290	107
24	750	438	808	1,080	261	338	7,510	6,300	434	422	2,340	182
25	684	426	750	920	261	314	8,430	10,800	382	237	3,630	148
26	732	410	720	780	261	298	6,090	15,200	362	2,060	3,710	119
27	666	390	726	672	261	278	2,490	15,300	354	5,520	1,630	111
28	640	362	750	620	261	264	1,990	13,900	342	7,490	864	99
29	635	338	774	600	249	258	1,770	10,400	302	8,460	575	117
30	1,440	330	714	605	------	1,240	1,620	3,420	193	6,300	454	140
31	7,230	------	650	660	------	1,120	------	1,960	------	4,630	410	------
TOTAL	74,020	57,181	27,185	17,538	15,169	10,883	68,894	100,917	34,538	38,132	136,143	5,017
MEAN	2,388	1,906	877	566	523	351	2,296	3,255	1,151	1,230	4,392	167
MAX	7,510	8,330	1,780	1,240	1,460	1,240	8,430	15,300	2,870	8,460	13,500	402
MIN	188	330	338	264	249	168	398	255	193	51	410	93
AC-FT	146,800	113,400	53,920	34,790	30,090	21,590	136,600	200,200	68,510	75,630	270,000	9,950

CAL YR 1967 :TOTAL 789,745 MEAN 2,164 MAX 44,200 MIN 24 AC-FT 1,566,000
WTR YR 1968 :TOTAL 585,617 MEAN 1,600 MAX 15,300 MIN 51 AC-FT 1,162,000

PEAK DISCHARGE (BASE, 8,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
11-1	0100	16.64	8,750	7-29	1500	16.42	8,590
4-25	1200	16.38	8,570	8-12	1500	22.82	13,600
5-26	2100	24.61	15,800				

6-9170. Little Osage River at Fulton, Kans.

Location.--Lat 38°01'09", long 94°42'48", on east line sec. 25, T. 23 S., R. 24 E., on right bank at downstream side of bridge on U.S. Highway 69, three-quarters of a mile north of Fulton, Bourbon County.

Drainage area.--295 sq mi.

Records available.--November 1948 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 776.37 ft above mean sea level, datum of 1929. Prior to May 28, 1952, wire-weight gage, and May 28, 1952 to Apr. 24, 1964, graphic water-stage recorder, both at present site and datum.

Average discharge.--19 years (1949-68), 171 cfs (123,800 acre-ft per year).

Extremes.--Maximum discharge during year, 5,610 cfs Oct. 31 (gage height, 20.41 ft); no flow Sept. 20-22.
1948-68: Maximum discharge, 20,700 cfs May 6, 1961 (gage height, 29.38 ft); no flow at times in 1949, 1952-57, 1959, 1961-64, 1966-68.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	4,340	66	57	98	28	86	41	645	2.6	40	2.8
2	34	986	80	59	94	28	72	37	387	2.4	28	2.1
3	26	1,080	112	53	83	25	131	103	181	1.6	23	1.6
4	19	742	181	44	76	24	196	65	128	1.2	16	1.4
5	1,260	397	217	41	69	22	150	38	101	1.0	12	1.1
6	1,640	300	144	39	60	22	105	29	82	1.0	8.3	.86
7	3,600	245	121	33	56	22	91	35	71	1.1	5.3	.86
8	2,020	210	103	31	52	23	80	65	62	1.1	3.8	.72
9	468	188	101	31	50	24	71	39	58	.80	4.4	.37
10	246	172	2,090	32	50	24	64	33	56	.22	11	.20
11	174	160	520	32	46	22	59	36	66	.16	7.8	.17
12	141	146	234	34	42	21	54	44	46	.12	5.3	.19
13	120	132	168	31	40	21	51	66	38	.08	1.9	.20
14	104	123	134	29	37	19	48	208	33	.07	1.7	.17
15	101	116	115	28	36	18	45	89	29	.06	5.3	.13
16	260	111	107	28	36	18	42	159	27	.07	17	.09
17	216	106	111	30	35	19	40	80	27	.08	7.4	.06
18	127	100	117	47	33	19	38	60	25	.06	4.7	.05
19	102	94	115	94	34	268	208	46	22	.07	3.8	.03
20	89	90	108	93	34	295	278	35	18	.05	4.4	.02
21	81	88	104	100	32	184	76	28	16	.03	47	0
22	74	86	93	98	30	147	90	825	12	.02	23	0
23	68	83	83	94	29	118	204	1,020	9.3	.01	13	.05
24	62	80	80	80	29	101	121	353	6.7	.01	15	22
25	58	77	80	74	29	91	101	2,190	6.0	.11	61	92
26	56	73	76	70	30	83	77	2,480	5.9	129	19	73
27	56	69	74	66	31	76	65	502	4.1	586	9.0	39
28	54	65	71	68	30	70	57	292	3.3	114	7.0	23
29	87	63	68	72	29	65	51	209	2.4	60	6.4	16
30	1,900	64	65	91	------	66	46	161	1.8	97	4.8	11
31	5,080	------	63	93	------	121	------	134	------	68	3.5	------
TOTAL	18,371	10,586	5,801	1,772	1,330	2,084	2,797	9,502	2,169.5	1,068.02	419.8	289.17
MEAN	593	353	187	57.2	45.9	67.2	93.2	307	72.3	34.5	13.5	9.64
MAX	5,080	4,340	2,090	100	98	295	278	2,480	645	586	61	92
MIN	19	63	63	28	29	18	38	28	1.8	.01	1.7	0
AC-FT	36,440	21,000	11,510	3,510	2,640	4,130	5,550	18,850	4,300	2,120	833	574

CAL YR 1967: TOTAL 78,118.44 MEAN 214 MAX 5,800 MIN 0 AC-FT 154,900
WTR YR 1968: TOTAL 56,189.49 MEAN 154 MAX 5,080 MIN 0 AC-FT 111,500

PEAK DISCHARGE (BASE, 3,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-05	1700	14.43	3,350	12-10	0700	15.95	3,880
10-06	2400	16.10	3,940	05-25	1700	15.89	3,860
10-31	1900	20.41	5,610				

6-9175. Marmaton River near Fort Scott, Kans.

Location.--Lat 37°51'47", long 94°40'36", in NE¼NE¼ sec. 20, T. 25 S., R. 25 E., on left bank at downstream side of highway bridge, 0.6 mile downstream from Wolverine Creek, 1 mile north of Fort Scott, Bourbon County, and at mile 31.0.

Drainage area.--408 sq mi.

Records available.--August 1921 to June 1925, April 1929 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 752.60 ft above mean sea level, datum of 1929. Aug. 5, 1921 to Dec. 3, 1934 chain gage and Dec. 4, 1934 to Sept. 30, 1960, graphic water-stage recorder at Military Highway Bridge 0.8 mile downstream at same datum. Oct. 1, 1960 to Sept. 30, 1963, graphic water-stage recorder and Oct. 1, 1963 to Aug. 3, 1965, digital water-stage recorder 2.5 miles upstream at same datum. Oct. 1, 1956 to Sept. 30, 1960, auxiliary wire-weight gage read once-daily at National Avenue Bridge 3.9 miles upstream at same datum.

Average discharge.--42 years (1921-24, 1929-68), 280 cfs (202,700 acre-ft per year).

Extremes.--Maximum discharge during year, 38,000 cfs May 25 (gage height, 38.31 ft); minimum daily, 0.20 cfs July 24.
1921-25, 1929-68: Maximum discharge, 38,100 cfs May 6, 1961 (gage height, 42.67 ft, site then in use); no flow at times in 1934, 1936, 1939, 1942-45.
Maximum stage known since 1904, about 44.2 ft Sept. 7, 1915, from information by local residents.

Remarks.--Records good except those for period of no gage-height record, which are poor. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	6,170	57	69	266	38	121	88	483	356	10	.86
2	34	2,570	95	63	228	36	104	77	372	308	8.0	.55
3	24	1,390	187	57	183	33	237	360	210	117	6.0	.45
4	21	897	270	52	159	32	538	171	149	60	5.0	.55
5	20	495	378	47	141	30	250	90	112	39	4.0	.59
6	731	377	264	45	120	28	164	69	89	28	3.5	.52
7	2,710	310	175	41	102	28	141	71	79	23	3.0	.60
8	1,590	263	121	36	91	31	122	79	500	18	2.5	.79
9	602	220	107	34	81	32	99	79	1,380	15	2.2	.92
10	325	174	1,590	34	75	32	85	69	307	13	2.0	1.0
11	219	156	1,260	36	71	31	76	80	841	11	4.0	.94
12	170	137	623	36	65	29	70	106	439	9.0	5.0	1.0
13	140	120	367	35	59	25	68	105	168	8.0	3.0	1.0
14	110	108	246	32	55	24	65	579	106	6.0	2.5	1.1
15	102	99	188	29	52	26	58	373	218	5.0	5.0	1.0
16	194	92	165	29	53	26	55	259	211	4.5	4.0	1.0
17	177	97	170	31	54	26	53	203	142	3.5	4.5	.94
18	116	83	191	48	51	28	49	122	101	5.0	5.0	.94
19	96	76	187	176	49	657	272	89	75	5.0	4.0	1.1
20	75	71	163	183	48	834	2,730	65	55	3.0	3.5	1.0
21	63	68	148	163	48	397	511	54	44	1.5	3.0	1.1
22	57	65	131	145	46	327	432	1,010	35	.70	2.3	4.4
23	50	63	105	135	42	263	1,390	2,910	28	.40	2.1	11
24	54	60	95	114	41	199	535	877	26	.20	19	13
25	51	57	99	94	41	172	299	13,300	31	12	14	.93
26	47	54	95	85	43	150	217	17,800	92	200	6.8	.32
27	47	50	84	81	44	134	167	4,860	70	40	4.3	.23
28	45	47	79	80	44	124	139	1,570	40	25	3.0	.22
29	60	44	77	91	41	108	117	512	27	20	1.9	.22
30	1,950	47	73	292	------	104	100	300	22	15	1.4	.22
31	6,580	------	74	348	------	115	------	231	------	12	1.7	------
TOTAL	16,506	14,460	7,864	2,741	2,393	4,119	9,264	46,558	6,452	1,363.80	146.2	48.49
MEAN	532	482	254	88.4	82.5	133	309	1,502	215	44.0	4.72	1.62
MAX	6,580	6,170	1,590	348	266	834	2,730	17,800	1,380	356	19	13
MIN	20	44	57	29	41	24	49	54	22	.20	1.4	.22
AC-FT	32,740	28,680	15,600	5,440	4,750	8,170	18,370	92,350	12,800	2,710	290	96

CAL YR 1967: TOTAL 114,450.78 MEAN 314 MAX 9,620 MIN .94 AC-FT 227,000
WTR YR 1968: TOTAL 111,915.49 MEAN 306 MAX 17,800 MIN .20 AC-FT 222,000

PEAK DISCHARGE (BASE, 3,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-31	2400	32.81	7,650	5-23	0400	23.91	3,570
04-20	0700	23.94	3,580	5-25	2200	38.31	38,000

7-1370. Frontier ditch near Coolidge, Kans.

Location.--Lat 38°02'18", long 102°02'19", in NE¼ sec. 21, T. 23 S., R. 43 W., on left bank 0.3 mile east of Colorado-Kansas State line, 0.5 mile downstream from Holly drain diversion, 1.5 miles west of Coolidge, and 2.3 miles downstream from diversion from Arkansas River.

Records available.--October 1950 to September 1968.

Gage.--Water-stage recorders and Parshall flume. Datum of gage is 3,353.14 ft above mean sea level, datum of 1929.

Extremes.--1950-68: Maximum daily discharge, 70 cfs May 7, 1959; no flow for many days.

Remarks.--Records good. This ditch diverts water from Arkansas River in Colorado for use in Kansas. These records and records for Arkansas River near Coolidge represent total flow of Arkansas River at Colorado-Kansas State line.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	0	0	0	0	0	48	39	31	37	33	43
2	32	0	0	0	0	0	49	36	43	30	18	42
3	32	0	0	0	0	0	50	41	23	26	33	38
4	33	0	0	0	0	0	39	53	16	36	37	33
5	36	0	0	0	0	0	24	52	7.4	34	28	29
6	38	0	0	0	0	0	29	52	0	45	17	28
7	40	0	0	0	0	0	30	41	0	38	14	28
8	46	0	0	0	0	0	15	43	3.3	30	29	35
9	44	0	0	0	0	0	8.6	39	23	25	38	41
10	43	0	0	0	0	0	7.0	40	27	29	43	41
11	46	0	0	0	0	0	7.7	45	30	33	38	37
12	41	0	0	0	0	0	5.8	48	36	25	46	36
13	37	0	0	0	0	0	.70	47	37	26	41	41
14	35	0	0	0	0	0	0	44	29	30	48	40
15	30	0	0	0	0	0	0	42	3.8	30	50	41
16	29	0	0	0	0	0	0	38	0	27	31	41
17	28	0	0	0	0	0	0	41	0	36	34	42
18	28	0	0	0	0	15	0	39	0	47	30	40
19	28	0	0	0	0	51	0	37	0	39	33	37
20	25	0	0	0	0	50	0	36	7.6	30	36	39
21	24	0	0	0	0	48	0	36	8.2	40	35	34
22	26	0	0	0	0	49	0	37	16	36	32	34
23	26	0	0	0	0	46	0	38	27	40	28	32
24	28	0	0	0	0	42	0	37	31	50	16	32
25	31	0	0	0	0	43	0	37	43	52	7.4	32
26	18	0	0	0	0	47	14	37	31	33	27	34
27	0	0	0	0	0	44	41	36	27	26	50	33
28	0	0	0	0	0	42	36	36	27	38	53	30
29	0	0	0	0	0	46	33	33	28	43	56	30
30	0	0	0	0	------	44	38	33	28	35	50	34
31	0	------	0	0	------	48	------	39	------	38	42	------
TOTAL	857	0	0	0	0	615	475.80	1,252	583.3	1,084	1,073.4	1,077
MEAN	27.6	0	0	0	0	19.8	15.9	40.4	19.4	35.0	34.6	35.9
MAX	46	0	0	0	0	51	50	53	43	52	56	43
MIN	0	0	0	0	0	0	0	33	0	25	7.4	28
AC-FT	1,700	0	0	0	0	1,220	944	2,480	1,160	2,150	2,130	2,140

CAL YR 1967: TOTAL 6,380.7 MEAN 17.5 MAX 62 MIN 0 AC-FT 12,660
WTR YR 1968: TOTAL 7,017.50 MEAN 19.2 MAX 56 MIN 0 AC-FT 13,920

7-1375. Arkansas River near Coolidge, Kans.

Location.--Lat 38°01'34", long 102°00'41", in NE¼NW¼ sec. 26, T. 23 S., R. 43 W., on right bank at downstream side of bridge, 1 mile south of Coolidge, and 1.9 miles downstream from Colorado-Kansas State line.

Drainage area.--25,410 sq mi, of which 1,708 sq mi is probably noncontributing.

Records available.--May to October 1903, March to May 1921, October 1950 to September 1968. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 3,330.84 ft above mean sea level, datum of 1929. May 5 to Oct. 31, 1903, staff gage, and Mar. 1 to May 31, 1921, water-stage recorder at present site at different datums. Oct. 1, 1950, to Mar. 31, 1966, water-stage recorder at site 0.3 mile upstream at datum 3.00 ft higher.

Average discharge.--18 years, 236 cfs (170,900 acre-ft per year).

Extremes.--Maximum discharge during year, 1,300 cfs Aug. 15 (gage height, 4.45 ft); minimum daily, 6.8 cfs July 18.
1903, 1921, 1950-68: Maximum discharge, 158,000 cfs June 17, 1965 (gage height, 14.8 ft, present site and datum, from flood-marks), from rating curve extended above 13,000 cfs on basis of slope-area measurement of peak flow; no flow for many days in 1903, 1954, 1960.

Remarks.--Records good. Combined flow of river and Frontier ditch (see station no. 7-1370) represents entire flow that enters Kansas. Flow regulated by John Martin Reservoir. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversion for irrigation of about 500,000 acres, and return flow from irrigated areas. Records of chemical analyses and water temperatures for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	308	208	119	90	135	83	14	77	225	92	262	19
2	304	200	136	90	151	77	19	62	536	65	340	14
3	284	196	122	95	133	89	134	60	345	42	310	42
4	280	181	126	100	122	98	385	34	244	55	396	62
5	304	174	119	105	122	92	402	34	216	71	310	83
6	358	170	126	100	116	89	390	70	216	95	254	65
7	376	158	130	110	116	86	429	160	164	89	235	60
8	403	155	136	120	116	83	429	101	168	86	215	52
9	454	151	130	125	126	80	464	77	156	68	195	80
10	448	140	107	130	133	92	452	74	142	57	468	98
11	472	136	116	140	147	98	518	89	142	74	254	98
12	478	126	122	130	130	92	554	107	156	62	232	74
13	472	133	130	145	144	92	586	107	164	52	249	49
14	430	133	130	150	158	92	542	83	128	49	254	42
15	349	122	133	160	162	83	506	74	271	49	810	26
16	316	126	133	170	130	74	506	77	350	47	726	19
17	324	126	147	170	109	71	512	92	330	36	548	32
18	340	112	130	151	112	62	518	83	160	6.8	494	32
19	358	112	147	174	116	24	500	86	188	93	440	24
20	312	122	136	177	109	24	476	86	160	128	385	47
21	280	126	136	147	130	32	500	89	139	104	402	34
22	261	130	109	151	109	32	440	92	86	32	390	9.2
23	242	133	112	144	112	32	220	83	83	14	375	12
24	242	144	155	170	107	29	168	85	80	159	216	24
25	246	144	151	155	98	19	164	85	208	160	139	26
26	246	136	147	151	93	12	139	80	132	92	113	19
27	227	133	144	144	93	14	128	80	122	104	60	22
28	208	112	133	135	90	14	119	80	110	188	36	29
29	200	112	119	145	85	9.2	107	74	104	369	19	26
30	227	112	116	145	------	12	89	83	92	208	22	29
31	231	------	80	140	------	14	------	119	------	160	26	------
TOTAL	9,980	4,263	3,977	4,259	3,504	1,800.2	10,410	2,583	5,617	2,906.8	9,175	1,248.2
MEAN	322	142	128	137	121	58.1	347	83.3	187	93.8	296	41.6
MAX	478	208	155	177	162	98	586	160	536	369	810	98
MIN	200	112	80	90	85	9.2	14	34	80	6.8	19	9.2
AC-FT	19,800	8,460	7,890	8,450	6,950	3,570	20,650	5,120	11,140	5,770	18,200	2,480

CAL YR 1967: TOTAL 104,163 MEAN 285 MAX 1,930 MIN 65 AC-FT 206,600
WTR YR 1968: TOTAL 59,723.2 MEAN 163 MAX 810 MIN 6.8 AC-FT 118,500

7-1380. Arkansas River at Syracuse, Kans.

Location.--Lat 37°57'58", long 101°45'23", in SW¼ sec. 18, T. 24 S., R. 40 W., near center of stream on downstream side of pier of bridge on U.S. Highway 270, half a mile south of Syracuse, Hamilton County, and at mile 1,080.9.

Drainage area.--25,763 sq mi, of which 1,857 sq mi is probably noncontributing.

Records available.--August 1902 to September 1906 (published as "near Syracuse"), October 1920 to September 1968. Monthly discharge only for some periods published in WSP 1311.

Gage.--Digital water-stage recorder. Datum of gage is 3,209.32 ft above mean sea level, datum of 1929. Sept. 30, 1906, staff gage at site 150 ft downstream at different datum. June 20, 1921 to Sept. 30, 1929, graphic water-stage recorder at site 150 ft downstream at datum 5.0 ft higher. Oct. 1, 1929 to July 1, 1952, graphic water-stage recorder at site 150 ft downstream at datum 3.0 ft higher. July 2, 1952 to Nov. 14, 1956, graphic water-stage recorder and wire-weight gage read once daily, at present site at datum 3.0 ft higher. Nov. 15, 1956 to May 25, 1966, graphic water-stage recorder and wire-weight gage read once daily at present site and datum.

Average discharge.--52 years, 368 cfs (266,400 acre-ft per year).

Extremes.--Maximum discharge during year, 1,050 cfs Aug. 16 (gage height, 6.12 ft); minimum discharge, 5.8 cfs Sept. 26.
1902-6, 1920-68: Maximum discharge, 174,000 cfs June 17, 1965 (gage height, 19.75 ft) from rating curve extended above 62,000 cfs on basis of indirect measurements; maximum gage height, 21.80 ft June 17, 1965; no flow Aug. 17, 1946.
Flood in October 1908 reached a stage of about 11.7 ft, from information by local newspaper (discharge, about 87,000 cfs).

Remarks.--Records good. Flow regulated by John Martin Reservoir. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation and return flow from irrigated areas. Records of suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	306	215	120	79	142	104	39	75	113	107	203	34
2	302	210	124	96	135	101	36	62	265	103	281	35
3	291	210	125	91	137	97	24	55	370	85	293	37
4	273	205	125	97	138	101	259	42	262	74	312	46
5	285	193	128	108	141	101	401	25	217	72	329	47
6	332	181	124	121	140	98	383	30	196	71	263	47
7	353	175	127	92	133	96	418	55	182	92	223	40
8	372	167	128	98	131	97	443	101	170	85	211	36
9	397	162	126	113	131	97	449	76	173	78	197	35
10	404	159	103	119	130	100	448	70	179	56	206	40
11	408	154	111	127	128	103	450	80	173	50	381	39
12	420	150	128	132	127	110	491	84	175	51	239	36
13	432	144	126	109	126	105	516	91	186	43	236	29
14	428	144	124	115	117	105	468	90	180	35	243	25
15	379	142	123	122	124	100	451	74	200	24	336	24
16	345	137	130	145	128	93	444	97	241	18	759	21
17	334	135	132	161	119	86	437	87	315	15	501	14
18	331	130	134	158	116	87	429	87	228	13	441	12
19	331	123	132	132	121	85	404	79	172	11	407	14
20	319	118	131	141	122	78	399	81	171	28	347	13
21	286	123	126	156	119	78	387	81	173	34	312	17
22	272	127	98	162	123	77	395	89	153	28	292	13
23	274	128	91	159	115	70	297	89	115	13	269	8.7
24	270	131	135	156	114	58	211	79	105	8.2	232	7.4
25	286	128	152	160	113	45	179	79	140	131	163	7.8
26	280	126	137	159	112	45	153	79	158	127	133	7.3
27	258	124	133	153	111	51	149	99	131	98	98	6.4
28	238	123	131	150	112	39	140	87	119	218	60	8.7
29	223	121	129	147	109	32	118	93	114	200	46	8.2
30	208	123	127	148	------	32	93	90	109	277	42	14
31	215	------	86	147	------	28	------	97	------	193	38	------
TOTAL	9,852	4,508	3,846	4,053	3,614	2,499	9,511	2,403	5,485	2,438.2	8,093	722.5
MEAN	318	150	124	131	125	80.6	317	77.5	183	78.7	261	24.1
MAX	432	215	152	162	142	110	516	101	370	277	759	47
MIN	208	118	86	79	109	28	24	25	105	8.2	38	6.4
AC-FT	19,540	8,940	7,630	8,040	7,170	4,960	18,860	4,770	10,880	4,840	16,050	1,430

CAL YR 1967: TOTAL 102,863 MEAN 282 MAX 2,300 MIN 25 AC-FT 204,000
WTR YR 1968: TOTAL 57,024.7 MEAN 156 MAX 759 MIN 6.4 AC-FT 113,100

7-1386.5 Whitewoman Creek near Leoti, Kans.

Location.--Lat 38°28'52", long 101°29'16", NW¼ sec. 23, T. 18 S., R. 38 W., at bridge on State Highway 96, 7 miles west of Leoti, Wichita County, and at mile 42.0.

Drainage area.--750 sq mi.

Records available.--October 1966 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 3,324.79 ft above mean sea level, datum of 1929.

Extremes.--1966-67: Maximum discharge during water year, 1,330 cfs May 30 (gage height, 5,88 ft); no flow for many days.
1967-68: Maximum discharge during water year, 2,120 cfs Aug. 15 (gage height, 7.15 ft); no flow for many days.

Remarks.--Records fair above 45 cfs, poor below.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1966 TO SEPTEMBER 1967

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	70	0
8	0	0	0	0	0	0	0	0	0	0	90	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	83	0	0
13	0	0	0	0	0	0	0	0	0	1.4	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	74	0	0	0
16	0	0	0	0	0	0	0	0	108	0	0	0
17	0	0	0	0	0	0	0	0	2.7	0	0	0
18	0	0	0	0	0	0	0	0	123	0	0	0
19	0	0	0	0	0	0	0	0	3.5	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	------	0	0	0	181	0	0	0
30	0	0	0	0	------	0	0	74	4.3	0	0	0
31	0	------	0	0	------	0	------	99	------	0	0	------
TOTAL	0	0	0	0	0	0	0	173	496.5	84.4	160	0
MEAN	0	0	0	0	0	0	0	5.58	16.6	2.72	5.16	0
MAX	0	0	0	0	0	0	0	99	181	83	90	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	0	343	985	167	317	0

CAL YR 1966: TOTAL MEAN MAX MIN AC-FT
WTR YR 1967: TOTAL 913.9 MEAN 2.50 MAX 181 MIN 0 AC-FT 1,810

PEAK DISCHARGE (BASE, 300 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
5-30	2400	5.88	1,330	6-29	0900	4.50	700
6-15	2000	3.65	390	7-12	1100	3.58	362
6-18	1300	3.95	502	8-06	UNKNOWN	5.81	1,300

7-1386.5 Whitewoman Creek near Leoti, Kans.--continued

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	24	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	608	0
16	0	0	0	0	0	0	0	0	0	68	160	0
17	0	0	0	0	0	0	0	0	0	.10	43	0
18	0	0	0	0	0	0	0	0	0	0	1.5	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	18	44	0	0
26	0	0	0	0	0	0	0	0	0	121	0	0
27	0	0	0	0	0	0	0	0	0	2.5	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	------	0	0	0	0	0	0	0
31	0	------	0	0	------	0	------	0	------	0	0	------
TOTAL	0	0	0	0	0	0	0	0	18	235.60	836.5	0
MEAN	0	0	0	0	0	0	0	0	.60	7.60	27.0	0
MAX	0	0	0	0	0	0	0	0	18	121	608	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	0	0	36	467	1,660	0

CAL YR 1967: TOTAL 913.9 MEAN 2.50 MAX 181 MIN 0 AC-FT 1,810
WTR YR 1968: TOTAL 1,090.10 MEAN 2.99 MAX 608 MIN 0 AC-FT 2,160

PEAK DISCHARGE (BASE, 300 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7-25	2400	3.70	410	8-15	1200	7.15	2,120

7-1390. Arkansas River at Garden City, Kans.

Location.--Lat 37°57'21", long 100°52'37", in NW¼ sec. 19, T. 24 S., R. 32 W., at downstream side of bridge on U.S. Highway 83, half a mile south of Garden City, Finney County, and at mile 1,024.2.

Drainage area.--27,071 sq mi, of which about 2,368 sq mi is probably noncontributing.

Records available.--June 1922 to September 1968. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Digital water-stage recorder. Datum of gage is 2,821.43 ft above mean sea level, datum of 1929. Prior to May 9, 1957, graphic water-stage recorder at site 60 ft downstream at datum 3.0 ft higher. May 9, 1957 to July 9, 1964, graphic water-stage recorder at present site at datum 3.0 ft higher. July 10, 1964 to Sept. 30, 1966, graphic water-stage recorder at present site and datum.

Average discharge.--46 years, 202 cfs (146,200 acre-ft per year).

Extremes.--Maximum discharge during year, 304 cfs June 19 (gage height, 2.22 ft); maximum gage height, 2.61 ft Dec. 21 (backwater from ice); minimum discharge, 1.6 cfs Sept. 6.
1922-68: Maximum discharge 130,000 cfs June 19, 1965 (gage height, 16.30 ft), from rating curve extended above 40,000 cfs on basis of indirect measurement; maximum gage height, 16.58 ft June 18, 1965; no flow at times in most years.

Remarks.--Records good. Flow regulated by John Martin Reservoir. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas. Low flow supplemented by perennial flow (estimated at 8 to 26 cfs) from power plant ½ mi upstream which withdraws approximately 15,000 ac-ft annually from ground-water (from Wheatland Electric Cooperative, Inc. records).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	157	91	60	189	78	19	18	38	15	54	4.3
2	19	172	82	57	187	75	24	14	54	14	54	4.3
3	18	184	63	48	185	74	25	11	72	15	53	3.6
4	18	198	65	53	177	72	24	14	99	14	55	4.7
5	17	202	60	72	177	68	26	13	130	13	51	2.9
6	17	200	71	82	175	55	23	13	82	16	53	2.5
7	16	186	76	68	177	45	20	11	61	16	46	4.3
8	17	160	79	81	179	36	15	11	49	17	37	4.1
9	19	141	90	116	174	28	12	13	45	22	28	4.2
10	19	127	115	152	167	28	12	21	132	16	23	6.0
11	21	111	132	181	165	27	14	26	177	17	18	6.4
12	19	101	132	187	164	30	14	46	160	43	16	4.1
13	10	88	143	184	162	28	12	51	154	35	17	7.9
14	12	78	173	197	162	30	15	46	160	21	13	12
15	16	72	141	197	158	28	16	29	178	18	10	14
16	17	69	105	152	146	23	13	27	201	14	8.8	13
17	19	65	117	172	148	17	15	28	219	9.9	5.3	9.7
18	30	59	124	190	153	22	17	26	257	12	4.9	9.9
19	42	57	141	174	144	19	19	31	267	24	3.0	12
20	49	59	208	190	141	19	15	33	222	12	3.8	11
21	65	59	200	230	146	20	12	33	179	12	5.5	9.7
22	84	59	100	265	141	19	15	34	135	14	5.4	12
23	113	60	104	263	129	22	14	35	104	15	2.1	12
24	95	60	141	278	131	20	18	40	67	16	3.1	15
25	165	64	185	229	124	17	32	41	48	109	3.6	14
26	150	64	188	209	122	15	34	39	32	110	4.1	12
27	114	62	180	208	125	20	32	39	22	69	4.6	12
28	126	63	180	204	112	19	17	37	15	69	4.1	12
29	163	70	168	198	92	20	20	35	13	73	3.4	8.5
30	184	84	181	195	------	19	18	37	13	69	4.7	10
31	164	------	100	190	------	19	------	38	------	57	5.0	------
TOTAL	1,836	3,131	3,935	5,082	4,452	1,012	562	890	3,385	976.9	599.4	258.1
MEAN	59.2	104	127	164	154	32.6	18.7	28.7	113	31.5	19.3	8.60
MAX	184	202	208	278	189	78	34	51	267	110	55	15
MIN	10	57	60	48	92	15	12	11	13	9.9	2.1	2.5
AC-FT	3,640	6,210	7,800	10,080	8,830	2,010	1,110	1,770	6,710	1,940	1,190	512

CAL YR 1967: TOTAL 42,955.0 MEAN 118 MAX 1,090 MIN 8.5 AC-FT 85,200
WTR YR 1968: TOTAL 26,119.4 MEAN 71.4 MAX 278 MIN 2.1 AC-FT 51,810

PEAK DISCHARGE (BASE, 600 CFS).--NO PEAK ABOVE BASE.

7-1395. Arkansas River at Dodge City, Kans.

Location.--Lat 37°44'51", long 100°01'08", in NE¼ sec. 35, T. 26 S., R. 25 W., near center of stream on downstream side of pier of Second Street Bridge in Dodge City, Ford County, at mile 970.2.

Drainage area.--30,600 sq mi, of which 5,583 sq mi is probably noncontributing.

Records available.--October 1902 to September 1906 (published as "near Dodge"), September 1944 to September 1968. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at same site at different datum 1909-1932 are contained in reports of U.S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 2,467.71 ft above mean sea level, datum of 1929. Nov. 28, 1902 to Aug. 10, 1906, staff gage at same site at datum about 5 ft higher. Sept. 1 to Nov. 5, 1944, wire-weight gage at present site and datum.

Average discharge.--28 years, 236 cfs (170,900 acre-ft per year).

Extremes.--Maximum discharge during year, 950 cfs July 4 (gage height, 5.00 ft); minimum, 11 cfs Aug. 26.
1902-6; 1944-68: Maximum discharge, 82,000 cfs June 19, 1965 (gage height, 15.68 ft); no flow at times in 1903, 1946, 1954, 1956.

Remarks.--Records good. Flow regulated by John Martin Reservoir (see Sta. no. 1300). Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawa's and diversions for irrigation, and return flow from irrigated areas. Records of chemical analyses and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	126	102	70	204	168	57	49	44	87	54	29
2	58	136	105	70	201	159	62	47	44	80	50	26
3	57	140	109	70	201	148	64	47	43	67	44	24
4	58	151	109	70	196	143	60	46	42	332	40	25
5	57	156	107	70	190	140	59	46	43	108	39	22
6	58	168	105	60	190	136	57	54	46	105	36	21
7	58	173	102	60	187	130	54	43	60	73	29	20
8	57	176	105	60	187	126	54	42	65	69	28	20
9	55	173	105	70	190	123	57	44	60	78	26	21
10	54	170	105	70	190	116	60	52	64	64	25	22
11	54	165	109	80	187	109	62	57	76	60	26	20
12	49	156	116	90	187	107	64	62	96	58	28	20
13	47	151	118	90	182	98	67	64	98	57	33	18
14	46	143	123	120	184	87	67	64	105	55	36	17
15	40	138	136	150	187	76	65	64	251	54	33	17
16	42	136	128	200	187	71	64	64	165	52	30	18
17	40	128	128	230	182	69	62	65	159	49	32	18
18	40	126	126	250	179	64	62	65	156	46	32	16
19	44	116	128	250	184	62	62	60	350	43	30	16
20	46	114	140	250	184	59	58	60	193	40	25	16
21	47	112	143	240	182	57	57	65	193	39	21	15
22	49	109	140	221	182	55	57	64	190	39	18	15
23	54	107	140	207	182	55	57	65	176	38	16	17
24	57	107	140	210	179	57	55	62	159	38	14	17
25	64	105	140	218	176	60	52	57	162	38	14	16
26	74	102	154	218	173	57	47	52	140	39	14	16
27	87	102	168	212	176	55	50	54	126	128	14	16
28	96	102	170	207	176	54	47	50	114	154	92	16
29	105	100	176	204	173	54	49	52	105	80	54	16
30	107	100	173	204	------	57	49	47	93	71	86	15
31	123	------	70	204	------	55	------	46	------	58	34	------
TOTAL	1,881	3,988	3,920	4,725	5,378	2,807	1,737	1,709	3,618	2,299	1,053	565
MEAN	60.7	133	126	152	185	90.5	57.9	55.1	121	74.2	34.0	18.8
MAX	123	176	176	250	204	168	67	65	350	332	92	29
MIN	40	100	70	60	173	54	47	42	42	38	14	15
AC-FT	3,730	7,910	7,780	9,370	10,670	5,570	3,450	3,390	7,180	4,560	2,090	1,120

CAL YR 1967: TOTAL 49,688 MEAN 136 MAX 426 MIN 29 AC-FT 98,550
WTR YR 1968: TOTAL 33,680 MEAN 92.0 MAX 332 MIN 14 AC-FT 66,820

PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
6-15	1000	4.36	500	7-04	1100	5.00	950
6-19	0300	4.68	695	7-27	2300	4.82	814

7-1398. Mulberry Creek near Dodge City, Kans.

Location.-- Lat 37°35'53", long 100°00'52" in NW¼ sec. 24, T. 28 S., R. 25 W., at bridge on U.S. Highway 283, 9 miles south of Dodge City, Ford County, and 24 miles above mouth.

Drainage area.--73.8 sq mi.

Records available.--March to September 1968.

Gage.--Water-stage recorder. Datum of gage is 2,509.96 ft above mean sea level, datum of 1929, adjustment of 1967.

Extremes.--Maximum discharge during period, 22 cfs Aug. 30 (gage height, 4.65 ft); no flow for many days.

Remarks.--Records fair.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							0	0	0	0	0	.48
2							0	0	0	0	0	.02
3							.33	0	0	.37	0	0
4							.44	0	0	1.1	0	0
5							.56	0	0	1.2	0	0
6							.60	.05	0	.90	0	0
7							.43	.05	0	.90	.04	0
8							.09	0	.57	.76	.03	0
9							.60	.04	.15	.72	.12	0
10							.64	.16	.78	.56	.12	0
11							.56	.24	.09	.28	.16	0
12							.60	0	0	.48	.16	0
13							.32	.28	0	.12	.16	0
14							.40	.02	0	0	.16	0
15							0	0	0	0	.16	0
16							0	0	.49	0	.24	0
17							0	0	3.2	0	.20	0
18							0	0	.70	.30	.14	0
19						0	0	0	.10	.44	0	0
20						0	0	0	0	.32	0	0
21						0	0	.21	0	.28	0	0
22						0	0	.02	0	.36	0	0
23						0	0	0	0	.36	0	0
24						0	0	0	0	.21	0	0
25						0	0	0	.64	.03	0	0
26						0	0	0	.26	0	0	0
27						0	0	0	0	0	0	0
28						0	0	0	0	0	4.7	0
29						0	0	0	0	0	5.2	0
30					------	0	0	0	0	0	17	0
31	------				------	0	------	0	------	0	5.4	------
TOTAL							5.57	1.07	6.98	9.69	33.99	.50
MEAN							.19	.04	.23	.31	1.10	.02
MAX							.64	.28	3.2	1.2	17	.48
MIN							0	0	0	0	0	0
AC-FT							11	2.1	14	19	67	1.0

CAL YR 1967: TOTAL MEAN MAX MIN AC-FT
WTR YR 1968: TOTAL MEAN MAX MIN AC-FT

PEAK DISCHARGE (BASE, 100 CFS).--NO PEAK ABOVE BASE.

7-1400. Arkansas River near Kinsley, Kans.

Location.--Lat 37°56', long 99°22', on south line sec.26, T. 24 S., R. 19 W., near center of stream on downstream side of pier of bridge on U.S. Highway 50, 2 miles east of Kinsley, Edwards County, and at mile 920.3.

Drainage area.--31,066 sq mi, of which 5,660 sq mi is probably noncontributing.

Records available.--September 1944 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 2,144.64 ft above mean sea level, datum of 1929. Prior to Nov. 10, 1944, wire-weight gage at present site and datum. Nov. 10, 1944 to Mar. 16, 1966, graphic water-stage recorder at present site and datum.

Average discharge.--24 years, 211 cfs (152,800 acre-ft per year).

Extremes.--Maximum discharge during year, 504 cfs Aug. 30 (gage height, 4.29 ft); minimum, 17 cfs Aug. 27.
1944-68: Maximum discharge, 49,800 cfs June 21, 1965 (gage height, 14.60 ft); minimum, 0.7 cfs Oct. 28, 1956.

Remarks.--Records good. Flow regulated by John Martin Reservoir. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas. Records of suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	118	126	90	206	180	76	54	69	113	69	195
2	69	126	126	100	206	178	82	52	64	106	61	133
3	67	132	126	80	204	176	86	49	59	100	54	103
4	65	138	128	80	204	170	82	49	57	93	50	88
5	65	142	130	90	204	166	80	51	56	144	46	79
6	84	146	128	100	202	164	78	60	55	228	44	71
7	114	150	128	80	202	162	78	57	52	152	37	65
8	120	154	126	70	202	158	76	64	49	120	32	58
9	98	156	126	70	200	156	75	65	63	104	31	54
10	96	160	126	90	196	154	73	64	76	129	34	51
11	96	160	128	110	198	148	73	80	85	125	33	48
12	92	158	128	100	196	142	71	82	80	108	30	47
13	88	156	128	90	196	140	71	86	75	84	27	44
14	84	152	130	100	196	136	71	88	82	74	25	43
15	80	150	128	130	194	132	75	82	104	67	25	41
16	76	148	134	170	192	126	73	80	133	61	24	40
17	75	144	138	210	192	122	69	80	174	54	25	39
18	73	144	142	230	192	116	69	80	158	50	25	37
19	73	142	136	242	190	112	69	80	152	47	26	35
20	73	138	134	236	190	106	64	86	202	44	27	34
21	71	136	134	224	188	102	60	94	183	39	26	33
22	69	136	136	212	190	100	56	98	171	35	25	32
23	69	132	126	232	190	98	52	98	164	30	22	32
24	69	132	124	204	190	98	52	98	160	30	20	32
25	69	130	142	204	188	96	51	102	158	29	22	30
26	75	130	154	208	186	94	49	96	176	41	26	28
27	82	128	148	208	182	92	52	88	155	36	19	27
28	90	128	152	208	182	92	48	80	142	68	22	27
29	98	128	146	206	182	88	54	75	131	120	85	26
30	106	128	140	206	------	80	54	71	118	103	394	26
31	112	------	100	208	------	78	------	69	------	80	302	------
TOTAL	2,571	4,222	4,098	4,788	5,640	3,962	2,019	2,358	3,403	2,614	1,688	1,598
MEAN	82.9	141	132	154	194	128	67.3	76.1	113	84.3	54.5	53.3
MAX	120	160	154	242	206	180	86	102	202	228	394	195
MIN	65	118	100	70	182	78	48	49	49	29	19	26
AC-FT	5,100	8,370	8,130	9,500	11,190	7,860	4,000	4,680	6,750	5,180	3,350	3,170

CAL YR 1967: TOTAL 54,042 MEAN 148 MAX 504 MIN 59 AC-FT 107,200
WTR YR 1968: TOTAL 38,961 MEAN 106 MAX 394 MIN 19 AC-FT 77,280

PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8-30	1200	4.29	504				

7-1407. Guzzlers Gulch near Ness City, Kans.

Location.--Lat 38°17'40", long 99°57'10", on west line of sec. 23, T. 20 S., R. 24 W., 30 ft downstream from highway bridge 5 miles upstream from mouth and 11 miles southwest of Ness City, Ness County.

Drainage area.--58.2 sq mi.

Records available.--March 1961 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 2,240 ft (from topographic map).

Average discharge.--7 years (1962-68) 3.11 cfs (2,469 acre-ft per year).

Extremes.--Maximum discharge during year, 333 cfs July 25 (gage height, 5.95 ft); no flow for many days.
1961-68: Maximum discharge, 2,490 cfs June 29, 1967 (gage height 13.28 ft), from rating curve extended above 1,200 cfs by logarithmic plotting; no flow for many days.

Remarks.--Records poor.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	0	0	0	0	0	0	.85	0
2	0	0	0	0	0	0	0	0	0	0	.40	0
3	0	0	0	0	0	0	0	0	0	0	.60	0
4	0	0	0	0	0	0	0	0	0	0	.01	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	2.6	0	0	0
10	0	0	0	0	0	0	0	0	8.6	0	0	0
11	0	0	0	0	0	0	0	0	.04	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	18	0	0	0
17	0	0	0	0	0	0	0	0	.40	0	0	0
18	0	0	0	0	0	0	0	0	6.8	0	0	0
19	0	0	0	0	0	0	0	0	6.9	0	0	0
20	0	0	0	0	0	0	0	0	.20	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	121	0	0
26	0	0	0	0	0	0	0	0	0	104	0	0
27	0	0	0	0	0	0	0	0	0	10	0	0
28	0	0	0	0	0	0	0	0	0	8.6	0	0
29	0	0	0	0	0	0	0	0	0	53	0	0
30	0	0	0	0	------	0	0	0	0	10	0	0
31	0	------	0	0	------	0	------	0	------	2.5	0	------
TOTAL	0	0	0	0	0	0	0	0	43.54	309.1	1.86	0
MEAN	0	0	0	0	0	0	0	0	1.45	9.97	.06	0
MAX	0	0	0	0	0	0	0	0	18	121	.85	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	0	0	86	613	3.7	0

CAL YR 1967: TOTAL 3,582.84 MEAN 9.82 MAX 1,020 MIN 0 AC-FT 7,110
WTR YR 1968: TOTAL 354.50 MEAN .969 MAX 121 MIN 0 AC-FT 702

PEAK DISCHARGE (BASE, 75 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
6-16	0900	2.82	84	7-25	2300	5.95	333
6-18	2300	3.48	132	7-29	0800	2.82	84

7-1412. Pawnee River near Larned, Kans.

Location.--Lat 38°12'00", long 99°20'50", in NW¼ sec.30, T. 21 S., R. 18 W., on right bank, 0.8 mile north of U.S. Highway 156, 14 miles west of Larned, Pawnee County, and at mile 24.8.

Drainage area.--2,148 sq mi, of which 138 sq mi is probably noncontributing.

Records available.--April to September 1924 (gage heights and discharge measurements only), October 1924 to September 1968. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Digital water-stage recorder. Concrete control since June 2, 1959. Datum of gage is 2,040.90 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1924, at highway bridge 14 miles downstream at different datum. Nov. 21, 1924 to May 15, 1933, at site 2.8 miles downstream at datum 16.50 ft lower. May 16, 1933 to Feb. 17, 1949, at highway bridge 2.9 miles downstream at datum 19.60 ft lower. Feb. 18, 1949 to June 1, 1959, at highway bridge 1.5 miles downstream at datum 8.17 ft lower. June 2, 1959 to Sept. 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--44 years, 80.7 cfs (58,420 acre-ft per year).

Extremes.--Maximum discharge during year, 1,290 cfs June 21 (gage height, 6.98 ft); no flow many days.
1924-68: Maximum discharge, 16,300 cfs July 28, 1958 (gage height, 28.22 ft, site and datum then in use, or 22.9 ft, present site and datum); no flow at times in most years.

Remarks.--Records excellent. Diversions for irrigation above station. Records of chemical analyses and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.12	.02	0	.04	.04	.03	0	.01	0	3.0	47	0
2	.23	.01	0	.04	.03	.02	0	0	0	2.3	22	0
3	.42	.02	0	.04	.03	.02	0	0	0	1.6	11	0
4	.51	.02	0	.03	.03	.02	0	0	0	1.4	5.3	0
5	.34	.02	0	.04	.03	.01	0	0	0	1.5	4.1	0
6	.32	.02	0	.05	.03	.01	0	0	0	1.6	2.0	0
7	.25	.03	0	.03	.02	.01	0	.02	0	338	.61	0
8	.15	.02	0	.03	.02	.02	0	.01	0	111	.24	0
9	.13	0	0	.03	.02	.02	0	.01	0	59	.09	0
10	.12	0	0	.04	.03	.02	0	0	0	40	.02	0
11	.12	0	0	.04	.03	.02	0	.02	0	73	.01	0
12	.11	0	0	.05	.04	.02	0	.01	0	78	.01	0
13	.10	0	0	.04	.03	.01	0	.01	0	36	0	0
14	.08	0	0	.03	.03	.01	0	.01	0	19	0	0
15	.08	0	0	.04	.03	.02	0	0	74	14	0	0
16	.06	0	0	.04	.03	.01	0	0	295	23	0	0
17	.05	0	.01	.04	.03	0	0	0	659	13	0	0
18	.04	0	.02	.05	.03	0	0	0	213	6.3	0	0
19	.04	0	.02	.04	.03	0	0	0	271	3.3	0	0
20	.04	0	.03	.04	.03	0	0	0	812	.88	0	0
21	.03	0	.03	.04	.03	0	.03	0	1,220	.12	0	0
22	.03	0	.02	.05	.03	0	1.1	0	390	.01	0	0
23	.04	0	.02	.05	.03	0	.35	0	93	0	0	0
24	.03	0	.03	.04	.04	0	.10	0	48	2.7	0	0
25	.02	0	.03	.04	.04	0	.06	0	28	2.1	0	0
26	.04	0	.03	.04	.04	0	.04	0	17	1.3	0	0
27	.03	0	.04	.04	.03	0	.03	0	12	212	0	0
28	.02	0	.04	.04	.04	0	.03	0	7.9	338	0	0
29	.04	0	.04	.05	.02	0	.03	0	4.9	90	0	0
30	.03	0	.04	.04	------	0	.02	0	3.9	92	0	0
31	.03	------	.05	.03	------	0	------	0	------	116	0	------
TOTAL	3.65	0.16	0.45	1.24	0.89	0.27	1.79	0.10	4,148.7	1,680.11	92.38	0
MEAN	.12	.005	.015	.040	.031	.009	.060	.003	138	54.2	2.98	0
MAX	.51	.03	.05	.05	.04	.03	1.1	.02	1,220	338	47	0
MIN	.02	0	0	.03	.02	0	0	0	0	0	0	0
AC-FT	7.2	.3	.9	2.5	1.8	.5	3.6	.2	8,230	3,330	183	0

CAL YR 1967: TOTAL 27,764.10 MEAN 75.9 MAX 2,860 MIN 0 AC-FT 55,070
WTR YR 1968: TOTAL 5,929.74 MEAN 16.2 MAX 1,220 MIN 0 AC-FT 11,760

PEAK DISCHARGE (BASE, 900 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
6-21	1100	6.98	1,290				

7-1413. Arkansas River at Great Bend, Kans.

Location.--Lat 38°21', long 98°46', in SE¼ sec.33, T. 19 S., R. 13 W., at downstream side of bridge on U.S. Highway 281, half a mile south of Great Bend, Barton County, 4½ miles upstream from Walnut Creek, and at mile 873.2.

Drainage area.--34,356 sq mi, of which 6,002 sq mi is probably noncontributing.

Records available.--September 1940 to September 1968. Fragmentary gage-height records collected at same site (at datum 3 ft higher) 1906, 1908-12, are contained in reports of U.S. Weather Bureau.

Gage.--Digital water-stage recorder. Datum of gage is 1,839.82 ft above mean sea level (levels by Corps of Engineers). Prior to March 16, 1966, graphic water-stage recorder at present site and datum.

Average discharge.--28 years, 407 cfs (294,700 acre-ft per year).

Extremes.--Maximum discharge during year, 1,060 cfs June 22 (gage height, 3.83 ft); minimum, 5.5 cfs July 23, Sept. 19.
1940-68: Maximum discharge, 27,800 cfs June 23, 1965 (gage height, 13.10 ft); maximum gage height, 13.18 ft June 23, 1965; no flow at times in 1940, 1946, 1956.
Maximum stage known prior to June 23, 1965 and since at least 1895, about 11.7 ft in June 1921, from reports of U.S. Weather Bureau (discharge not determined).

Remarks.--Records good. Flow regulated by John Martin Reservoir. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals, diversions for irrigation and to Cheyenne Bottoms State Waterfowl Refuge, and return flow from irrigated areas. Records of chemical analyses for the water year 1868 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	97	79	40	191	140	72	12	13	69	222	118
2	100	79	79	45	153	140	56	12	11	70	164	127
3	95	95	77	30	150	148	57	11	10	79	136	92
4	95	102	77	30	156	146	54	10	9.3	72	115	88
5	95	100	69	33	169	138	54	10	8.5	52	86	73
6	93	100	77	40	163	140	55	12	8.6	39	40	56
7	102	97	77	30	160	140	51	16	11	88	78	32
8	104	95	75	25	163	133	42	13	8.4	107	75	17
9	100	100	64	25	158	131	25	12	15	191	70	13
10	91	102	62	30	156	146	25	16	17	127	64	12
11	71	102	62	40	150	136	24	20	13	119	20	9.2
12	87	102	62	35	150	143	24	17	13	112	49	8.0
13	89	102	60	35	140	136	23	21	14	75	57	7.9
14	85	102	62	45	140	138	22	25	16	75	57	7.5
15	83	102	47	62	150	120	23	27	24	67	53	7.5
16	81	100	40	100	166	103	22	26	35	26	51	8.5
17	81	93	47	83	160	103	23	30	48	20	52	7.5
18	79	100	71	75	153	102	24	30	416	17	53	7.7
19	77	102	91	83	150	92	27	29	480	15	50	7.7
20	79	102	129	108	146	84	27	28	398	10	19	8.3
21	79	102	131	126	140	87	30	19	643	8.9	9.9	7.8
22	79	102	87	148	140	79	28	21	976	8.7	9.0	7.7
23	81	102	100	156	150	72	28	21	726	8.1	8.6	8.1
24	81	100	100	191	156	69	27	23	404	7.5	8.7	8.0
25	79	100	95	204	150	66	25	25	303	14	7.7	7.9
26	69	100	93	227	150	68	16	27	218	9.7	7.0	9.5
27	67	95	100	213	150	63	15	25	150	10	7.2	21
28	69	83	93	207	153	65	13	22	127	46	8.2	24
29	67	79	97	194	148	60	12	18	103	501	8.5	19
30	71	79	102	153	------	64	12	16	82	430	8.6	7.9
31	108	------	50	169	------	56	------	13	------	268	32	------
TOTAL	2,639	2,916	2,455	2,982	4,461	3,308	936	607	5,300.8	2,741.9	1,626.4	828.7
MEAN	85.1	97.2	79.2	96.2	154	107	31.2	19.6	177	88.4	52.5	27.6
MAX	108	102	131	227	191	148	72	30	976	501	222	127
MIN	67	79	40	25	140	56	12	10	8.4	7.5	7.0	7.5
AC-FT	5,230	5,780	4,870	5,910	8,850	6,560	1,860	1,200	10,510	5,440	3,230	1,640

CAL YR 1967: TOTAL 77,153.8 MEAN 211 MAX 3,210 MIN 3.4 AC-FT 153,000
WTR YR 1968: TOTAL 30,801.8 MEAN 84.2 MAX 976 MIN 7.0 AC-FT 61,090

PEAK DISCHARGE (BASE, 1,300 CFS).--NO PEAK ABOVE BASE.

7-1419. Walnut Creek at Albert, Kans.

Location.--Lat 38°27'40", long 99°00'50", on west line sec.29, T. 18 S., R. 15 W., at downstream side of highway bridge, 0.2 mile north of Albert, 14 miles northwest of Great Bend, Barton County, and at mile 43.0.

Drainage area.--1,410 sq mi, approximately, of which 104 sq mi is probably noncontributing.

Records available.--May 1958 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 1,897.37 ft above mean sea level (Corps of Engineers bench mark).

Average discharge.--10 years, 75.4 cfs (54,590 acre-ft per year).

Extremes.--Maximum discharge during year, 2,110 cfs July 27 (gage height, 20.57 ft); no flow at times.
1958-68: Maximum discharge, 12,700 cfs Sept. 22, 1959 (gage height, 25.75 ft); no flow at times in most years.
Maximum stage known prior to July 1958 and since at least 1908, 21.3 ft in August 1927, from floodmark and information by local residents (discharge not determined, but due to levees built in 1934 is substantially greater than indicated by current rating).

Remarks.--Records fair. Intermittent diversions from gage pool for irrigation. Records of chemical analyses, water temperatures and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	.44	.58	.80	6.0	4.4	0	0	.20	.08	99	.08
2	2.8	.30	.58	1.0	3.2	4.2	0	0	.17	.06	46	.02
3	2.7	.58	.72	.70	6.5	3.4	0	0	.16	.06	29	.01
4	2.5	.86	.72	.60	4.6	3.3	0	0	.16	.05	20	.01
5	1.6	1.3	.79	.70	4.6	3.3	0	0	.16	.06	15	0
6	1.6	1.2	1.3	.90	4.8	3.3	0	0	.16	.08	17	2.4
7	1.6	1.0	1.4	.70	3.4	2.9	0	0	.15	.08	11	2.4
8	1.4	.93	1.3	.50	3.4	2.9	0	1.0	.14	.08	5.6	1.6
9	1.3	1.0	1.6	.60	3.4	3.1	0	.29	.15	.08	2.8	.93
10	1.3	1.0	2.0	.80	3.6	3.6	0	.40	.15	.07	1.6	.82
11	1.6	.93	1.9	1.2	4.0	4.2	0	.49	.16	.06	1.6	.65
12	1.7	.86	2.0	2.0	4.0	4.0	0	.35	.14	.06	86	.50
13	1.8	.79	1.9	1.7	3.4	2.9	0	.38	.12	.06	496	.31
14	1.7	.86	1.9	1.7	3.1	2.9	.15	.40	.14	4.3	86	.35
15	1.1	.72	2.5	2.5	3.3	3.3	.15	.33	2.1	2.5	46	.33
16	.90	.51	2.5	5.0	3.4	2.5	0	.26	.33	.90	31	.38
17	.86	.58	2.7	5.9	2.2	2.5	0	.27	.16	.40	18	.35
18	.86	.44	2.7	4.4	3.3	2.5	0	.26	.10	.10	8.6	.38
19	.86	.37	2.2	3.3	3.8	2.2	0	.24	.09	0	4.6	.35
20	.86	.51	1.6	4.2	3.4	.51	0	.22	.07	0	1.9	.27
21	.93	.44	1.2	4.6	3.0	.58	0	.24	.07	0	1.7	.21
22	1.0	.58	.86	4.8	3.5	.58	25	.26	.06	0	1.3	.21
23	1.3	.58	1.2	4.6	4.2	.58	19	.26	.06	0	.65	.25
24	.79	1.0	1.0	4.8	4.6	.65	7.7	.22	.08	0	.21	.29
25	.93	1.0	1.5	5.2	5.0	.79	4.1	.24	.09	94	.41	.27
26	1.0	1.3	1.8	5.5	5.4	.51	1.6	.26	.06	762	.72	47
27	.86	1.4	1.8	5.5	5.4	.30	.90	.26	.05	1,830	.86	38
28	.86	1.0	1.5	6.1	5.5	.51	.78	.24	.05	1,760	.27	19
29	1.0	.93	1.7	6.5	4.0	.72	.67	.20	.06	315	.17	14
30	.93	.79	1.9	6.7	------	.41	0	.18	.06	756	.19	8.8
31	.72	------	1.0	7.1	------	0	------	.18	------	337	.14	------
TOTAL	43.06	24.20	48.35	100.60	118.0	67.54	60.05	7.43	5.65	5,863.08	1,033.32	140.17
MEAN	1.39	.807	1.56	3.25	4.07	2.18	2.00	.240	.188	189	33.3	4.67
MAX	3.7	1.4	2.7	7.1	6.0	4.4	25	1.0	2.1	1,830	496	47
MIN	.72	.30	.58	.50	2.2	0	0	0	.05	0	.14	0
AC-FT	85	48	96	200	234	134	119	15	11	11,630	2,050	278

CAL YR 1967: TOTAL 48,848.09 MEAN 134 MAX 2,600 MIN 0 AC-FT 96,890
WTR YR 1968: TOTAL 7,511.45 MEAN 20.5 MAX 1,830 MIN 0 AC-FT 14,900

PEAK DISCHARGE (BASE, 700 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7-27	2400	20.57	2,110	8-13	0700	12.98	717
7-30	1400	13.90	864				

7-1423. Rattlesnake Creek near Macksville, Kans.

Location.--Lat 37°52'20", long 98°52'30", on west line sec.16, T. 25 S., R. 14 W., at downstream side of highway bridge, 8 miles southeast of Macksville, Stafford County, and 87.5 miles upstream from mouth.

Drainage area.--784 sq mi, of which about 428 sq mi is probably noncontributing.

Records available.--October 1959 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,963.46 ft (from Stafford County bench mark). Prior to July 14, 1960, wire-weight gage and crest-stage gages at same site and datum. July 14, 1960 to December 13, 1960, graphic water-stage recorder at present site and datum.

Average discharge.--9 years, 27.5 cfs (19,910 acre-ft per year).

Extremes.--Maximum discharge during year, 354 cfs Oct. 9 (gage height, 7.32 ft); minimum, 0.10 cfs Sept. 20.
1959-68: Maximum discharge, 1,700 cfs Sept. 3, 1963 (gage height, 9.60 ft); minimum, that of Sept. 20, 1968.

Remarks.--Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	8.1	8.4	8.0	10	10	8.4	5.8	6.0	1.6	1.2	.37
2	4.0	8.4	8.8	8.5	9.7	10	8.4	5.6	5.6	1.7	1.2	.34
3	3.6	8.8	8.6	8.0	9.5	10	9.0	5.1	5.3	1.8	1.1	.37
4	3.3	8.8	8.4	8.8	9.5	10	8.8	4.9	4.9	2.1	.91	.40
5	3.3	8.6	8.4	9.0	9.5	10	8.6	4.7	4.4	2.0	.77	.37
6	3.8	8.4	8.6	7.5	9.7	10	7.9	6.0	4.4	2.2	.63	.36
7	5.6	8.1	8.6	8.0	9.5	10	8.1	8.4	4.4	15	.57	.33
8	5.1	7.9	8.4	9.3	9.5	10	7.9	7.9	4.0	28	.50	.31
9	146	7.9	8.6	8.6	9.5	10	7.9	7.5	4.7	12	.53	.32
10	222	7.9	8.6	8.6	10	11	7.9	7.9	4.9	6.2	.64	.32
11	44	7.9	8.6	8.8	10	11	7.3	8.8	4.7	3.6	.63	.28
12	25	7.5	9.0	8.0	10	10	7.0	8.1	4.2	1.9	.57	.24
13	17	7.5	9.0	8.0	10	10	7.3	8.1	3.8	2.1	.50	.24
14	14	7.5	8.8	8.5	10	10	7.5	8.4	3.9	1.4	.45	.21
15	12	7.3	8.8	9.0	10	10	7.0	7.5	5.6	1.4	.40	.26
16	11	7.3	9.0	10	10	10	7.0	6.6	6.6	1.2	.39	.33
17	9.7	7.3	9.3	10	10	9.5	7.0	6.2	6.0	1.1	.52	.27
18	9.3	7.0	10	10	10	9.3	6.8	6.4	5.1	.87	.47	.25
19	8.8	7.0	10	10	10	9.5	7.5	6.0	4.5	.72	.39	.22
20	8.6	7.0	9.7	10	10	9.5	7.7	6.4	3.9	.72	.35	.16
21	8.1	7.0	10	10	10	10	7.3	7.9	3.8	.76	.32	.22
22	7.9	7.3	9.0	11	9.5	10	7.5	8.6	3.2	.64	.31	.20
23	7.5	7.3	9.0	11	9.7	10	7.5	8.6	2.7	.56	.29	.28
24	7.3	7.7	9.5	11	11	10	7.3	8.6	2.6	.60	.32	.32
25	6.8	7.7	9.5	11	11	9.5	6.8	9.3	2.6	1.0	.27	.30
26	7.0	7.7	9.3	11	11	8.8	7.0	9.3	2.6	1.2	.25	.26
27	6.8	7.7	9.5	10	10	8.8	6.6	8.8	2.7	1.2	.26	.24
28	7.0	7.7	9.3	10	10	8.6	7.3	7.9	2.0	2.9	.39	.20
29	7.5	7.9	9.5	10	10	8.8	7.0	7.5	1.7	7.8	.47	.20
30	7.5	8.4	9.5	9.7	------	8.6	6.6	6.4	1.6	1.2	.50	.20
31	7.7	------	8.5	9.7	------	8.6	------	6.4	------	.99	.44	------
TOTAL	641.9	232.6	280.2	291.0	288.6	301.5	225.9	225.6	122.4	106.46	16.54	8.37
MEAN	20.7	7.75	9.04	9.39	9.95	9.73	7.53	7.28	4.08	3.43	.53	.28
MAX	222	8.8	10	11	11	11	9.0	9.3	6.6	28	1.2	.40
MIN	3.3	7.0	8.4	7.5	9.5	8.6	6.6	4.7	1.6	.56	.25	.16
AC-FT	1,270	461	556	577	572	598	448	447	243	211	33	17

CAL YR 1967: TOTAL 4,375.2 MEAN 12.0 MAX 305 MIN 1.8 AC-FT 8,680
WTR YR 1968: TOTAL 2,741.07 MEAN 7.49 MAX 222 MIN .16 AC-FT 5,440

PEAK DISCHARGE (BASE, 350 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-9	2200	7.32	354				

7-1426.2 Rattlesnake Creek near Raymond, Kans.

Location.--Lat 38°13'50", long 98°25'00", on west line of sec.15, T. 21 S., R. 10 W., at downstream side of highway bridge, 3½ miles south of Raymond, Rice County, and 5.4 miles upstream from mouth.

Drainage area.--1,167 sq mi, of which 569 sq mi is probably noncontributing.

Records available.--April 1960 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,701.64 ft above mean sea level, datum of 1929, supplementary adjustment of 1955. Prior to July 27, 1960, wire-weight gage at same site and datum. July 27, 1960 to Sept. 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--8 years, 46.2 cfs (33,450 acre-ft per year).

Extremes.--Maximum discharge during year, 59 cfs Jan. 29 (gage height, 3.83 ft); maximum gage height, 5.02 ft Dec. 23 (ice jam); no flow Aug. 22-27, Sept. 14, 20, 28-30.
1960-68: Maximum discharge, 1,000 cfs June 14, 1965 (gage height 7.29 ft); no flow at times in 1964, 1968.
Maximum stage known since at least 1891, about 8.5 ft from information by local resident.

Remarks.--Records good except those for winter months, which are fair. Flow regulated by salt refinement operations and by sportmens' dams upstream. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	5.5	4.2	17	48	34	12	17	14	1.1	1.5	.28
2	3.1	5.2	5.5	17	42	26	15	17	13	1.1	1.4	.14
3	2.6	5.5	8.1	14	42	25	20	13	12	.91	1.1	.11
4	2.6	7.2	7.2	18	40	30	16	5.8	12	.84	.70	.18
5	2.6	6.1	9.8	24	36	26	14	4.9	11	.81	.53	.17
6	4.4	7.2	8.8	17	33	22	18	7.1	7.5	.74	.38	.16
7	9.2	6.9	7.6	13	29	23	22	9.0	4.5	.72	.25	.09
8	8.9	6.0	8.1	13	30	25	16	7.4	4.0	.67	.19	.01
9	8.6	4.9	8.9	14	29	23	15	5.8	4.8	.73	.15	.01
10	7.5	7.5	9.2	16	29	22	16	5.8	4.0	.88	.36	.02
11	6.9	9.1	8.3	18	27	20	15	6.8	3.3	.72	.45	.02
12	6.0	8.1	11	16	27	19	17	8.2	3.2	.56	.38	.01
13	5.8	5.1	10	15	24	25	18	12	2.5	.54	.33	.01
14	5.5	3.7	9.0	16	24	31	15	23	2.8	.50	.21	0
15	5.2	3.7	9.0	18	26	28	13	24	5.0	.51	.19	.01
16	4.9	3.9	11	21	28	25	16	24	6.8	.49	.08	.05
17	4.4	3.9	15	23	26	26	16	22	8.4	.41	.26	.03
18	4.2	3.9	19	25	26	31	13	20	7.2	.35	.58	.02
19	3.9	3.9	18	27	28	25	14	18	6.5	.39	.25	.01
20	3.9	4.9	22	29	28	18	16	18	4.8	.33	.04	0
21	3.7	5.5	23	31	23	16	15	18	4.6	.24	.03	.06
22	3.5	5.3	20	33	22	16	16	20	5.5	.20	0	.02
23	3.1	5.6	20	33	24	15	12	19	4.1	.18	0	.06
24	3.1	7.3	23	38	28	16	12	18	3.6	.11	0	.08
25	3.3	7.1	24	42	33	16	19	18	3.1	6.4	0	.03
26	3.7	5.1	22	52	31	15	18	16	2.2	4.4	0	.02
27	3.7	4.4	20	57	31	18	16	16	1.6	2.6	0	.01
28	4.4	4.2	17	57	31	16	17	15	1.3	3.0	.28	0
29	4.2	3.3	19	57	30	15	16	14	.99	4.9	.69	0
30	3.9	4.2	21	54	------	15	16	13	.85	4.0	.78	0
31	4.9	------	15	52	------	15	------	13	------	2.1	.46	------
TOTAL	145.4	166.4	432.7	877	875	677	474	448.8	165.14	41.43	11.57	1.61
MEAN	4.69	5.55	14.0	28.3	30.2	21.8	15.8	14.5	5.50	1.34	.37	.054
MAX	9.2	9.1	23	57	48	34	22	24	14	6.4	1.5	.28
MIN	2.6	3.3	4.2	13	22	15	12	4.9	.85	.11	0	0
AC-FT	288	330	858	1,740	1,740	1,340	940	890	328	82	23	3.2

CAL YR 1967: TOTAL 9,768.2 MEAN 26.7 MAX 167 MIN 1.7 AC-FT 19,370
WTR YR 1968: TOTAL 4,316.05 MEAN 11.8 MAX 57 MIN 0 AC-FT 8,560

7-1428.6 Cow Creek near Claflin, Kans.

Location.--Lat 38°31'20", long 98°35'00", on north line Sec.6, T. 18 S., R. 11 W., at downstream side of State Highway 4 bridge, 2½ miles west of Claflin, Barton County, and at mile 97.8.

Drainage area.--43 sq mi.

Records available.--October 1966 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,780.905 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 162 cfs July 25 (gage height, 6.05 ft); no flow for many days.
1967-68: Maximum discharge, 1,720 cfs June 29, 1967 (gage height, 12.69 ft); no flow at times each year.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.02	.04	.12	.19	.12	.03	.14	.03	0	.02	0
2	0	.04	.05	.12	.15	.11	.06	.13	.02	0	.01	0
3	0	.07	.04	.12	.17	.09	.09	.09	.02	0	.01	0
4	0	.04	.03	.10	.18	.10	.06	.09	.01	0	.01	0
5	0	.03	.03	.09	.14	.12	.04	.11	.01	.01	.01	0
6	0	.04	.05	.07	.15	.12	.05	.22	.01	.01	0	0
7	.01	.05	.06	.02	.13	.15	.06	.47	.01	0	0	0
8	.01	.05	.05	.02	.14	.16	.04	.32	0	0	0	0
9	.01	.06	.04	.02	.14	.14	.03	.24	.01	0	0	0
10	.01	.06	.04	.02	.17	.13	.04	.24	1.1	0	0	0
11	.01	.06	.05	.03	.17	.11	.09	.38	4.6	0	0	0
12	.01	.05	.08	.03	.14	.11	.08	.16	1.8	0	0	0
13	.01	.05	.06	.02	.12	.11	.07	.15	.48	0	0	0
14	.01	.05	.05	.02	.12	.11	.06	.12	.09	0	0	0
15	.01	.06	.05	.03	.14	.12	.10	.08	1.9	0	0	0
16	.01	.05	.07	.04	.15	.08	.16	.07	3.0	0	0	0
17	.01	.05	.16	.06	.13	.08	.10	.09	.47	0	0	0
18	.01	.05	.16	.07	.12	.08	.05	.11	.10	0	0	0
19	.01	.07	.14	.07	.10	.10	.03	.10	.73	0	0	0
20	.01	.07	.15	.10	.09	.09	.04	.11	2.9	0	0	0
21	.01	.08	.13	.12	.09	.09	.23	.07	.84	0	0	0
22	.01	.09	.08	.15	.08	.07	.38	.06	.16	0	0	0
23	.01	.08	.14	.16	.07	.06	.22	.06	.05	0	0	64
24	.01	.09	.13	.16	.10	.07	.14	.04	.02	0	0	13
25	.01	.09	.12	.22	.14	.10	.12	.05	.02	69	0	2.0
26	.01	.08	.10	.27	.16	.12	.09	.05	.01	2.2	0	.44
27	.01	.06	.14	.31	.13	.12	.11	.05	.01	.24	0	.09
28	.01	.04	.16	.33	.13	.07	.14	.05	.01	10	0	.03
29	.01	.04	.16	.39	.12	.07	.14	.03	0	1.5	0	.01
30	.01	.05	.16	.27	------	.07	.13	.02	0	.16	0	.01
31	.01	------	.12	.22	------	.04	------	.03	------	.04	0	------
TOTAL	0.25	1.72	2.84	3.77	3.86	3.11	2.98	3.93	18.41	83.16	0.06	79.58
MEAN	.008	.057	.092	.12	.13	.10	.099	.13	.61	2.68	.002	2.65
MAX	.01	.09	.16	.39	.19	.16	.38	.47	4.6	69	.02	64
MIN	0	.02	.03	.02	.07	.04	.03	.02	0	0	0	0
AC-FT	.5	3.4	5.6	7.5	7.7	6.2	5.9	7.8	37	165	.1	158

CAL YR 1967: TOTAL 2,190.75 MEAN 6.00 MAX 781 MIN 0 AC-FT 4,350
WTR YR 1968: TOTAL 203.67 MEAN .56 MAX 69 MIN 0 AC-FT 404

PEAK DISCHARGE (BASE, 250 CFS).--NO PEAK ABOVE BASE.

7-1429. Blood Creek near Boyd, Kans.

Location.--Lat 38°32'10", long 98°51'35", on north line sec.34, T. 17 S., R. 14 W., at downstream side of State Highway 4 bridge, 1.3 miles northwest of Boyd, Barton County, 4.8 miles northwest of Hoisington and 11.9 miles upstream from Cheyenne Bottoms.

Drainage area.--61 sq mi.

Records available.--October 1956 to February 1962, (annual peaks only). March 1962 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,834.947 ft above mean sea level, datum of 1929. Prior to Mar. 23, 1962 crest-stage gage at site 0.7 mile upstream at different datum. Mar. 23, 1962 to Sept. 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--6 years, 5.62 cfs (4,070 acre-ft per year).

Extremes.--Maximum discharge during year, 865 cfs July 25 (gage height, 12.43 ft); no flow for many days.
1956-68: Maximum discharge, 3,860 cfs June 29, 1967 (gage height, 14.87 ft); no flow at times during most years.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.18	.34	.40	.20	.30	.27	.30	.24	.04	0	1.0	0
2	.18	.37	.40	.20	.30	.27	.27	.23	.03	0	.56	0
3	.21	.40	.34	.10	.30	.30	.49	.22	.07	0	.14	0
4	.18	.40	.40	.10	.27	.30	1.4	.22	.04	0	.02	0
5	.21	.34	.45	.15	.27	.34	.68	.22	.02	0	.01	0
6	.21	.34	.45	.10	.34	.30	.42	.26	.01	0	.01	0
7	.24	.34	.37	.05	.30	.30	.40	.29	.01	0	.01	0
8	.24	.37	.34	.05	.30	.45	.40	.36	.01	0	0	0
9	.30	.40	.37	.10	.30	.34	.37	.35	.02	0	0	0
10	.34	.30	.40	.20	.34	.30	.40	.31	.03	0	0	0
11	.34	.34	.45	.30	.34	.30	.40	.31	.01	0	.01	0
12	.34	.34	.45	.20	.34	.30	.37	.32	.01	0	.01	0
13	.34	.34	.37	.15	.34	.27	.31	.38	.01	0	.01	0
14	.30	.34	.37	.20	.30	.27	.31	.35	0	0	.01	0
15	.30	.34	.30	.30	.30	.30	.31	.34	.04	0	.01	0
16	.27	.34	.34	.40	.40	.24	.34	.29	1.6	0	.01	0
17	.27	.30	.55	.50	.45	.27	.30	.21	.29	0	.01	0
18	.30	.27	.55	.60	.45	.27	.24	.21	.06	0	.01	0
19	.37	.27	.50	.70	.50	.27	.22	.18	.03	0	.01	0
20	.30	.27	.50	.80	.50	.27	.41	.12	.01	0	0	0
21	.27	.24	.40	.90	.60	.24	.55	.13	.01	0	0	0
22	.27	.27	.30	1.0	.60	.21	6.1	.19	0	0	0	0
23	.30	.34	.27	1.1	.55	.30	3.9	.21	0	0	0	0
24	.30	.34	.30	1.1	.55	.37	.91	.23	0	0	0	0
25	.30	.34	.37	1.1	.65	.37	.58	.27	0	441	0	0
26	.30	.30	.37	.98	.65	.34	.47	.28	0	73	0	0
27	.34	.30	.37	.80	.40	.50	.40	.29	0	12	0	0
28	.34	.30	.45	.65	.37	.55	.40	.26	0	3.8	0	0
29	.34	.37	.40	.50	.34	.45	.40	.16	0	7.4	0	0
30	.34	.40	.30	.45	------	.45	.31	.13	0	2.6	0	0
31	.27	------	.15	.37	------	.45	------	.11	------	1.4	0	------
TOTAL	8.79	9.95	11.98	14.35	11.65	10.16	22.36	7.67	2.35	541.2	1.84	0
MEAN	.28	.33	.39	.46	.40	.33	.75	.25	.078	17.5	.059	0
MAX	.37	.40	.55	1.1	.65	.55	6.1	.38	1.6	441	1.0	0
MIN	.18	.24	.15	.05	.27	.21	.22	.11	0	0	0	0
AC-FT	17	20	24	28	23	20	44	15	4.7	1,070	3.7	0

CAL YR 1967: TOTAL 7,187.03 MEAN 19.7 MAX 2,130 MIN 0 AC-FT 14,260
WTR YR 1968: TOTAL 642.30 MEAN 1.75 MAX 441 MIN 0 AC-FT 1,270

PEAK DISCHARGE (BASE, 250 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7-25	1345	12.43	865				

7-1433. Cow Creek near Lyons, Kans.

Location.--Lat 38°18'30", long 98°11'30", in SW¼ sec.15, T. 20 S., R. 8 W., at downstream side of Missouri Pacific Railroad bridge, 500 ft downstream from Little Cow Creek, 3 miles south of Lyons, Rice County, and 33 miles upstream from mouth.

Drainage area.--728 sq mi (includes 229 sq mi in Cheyenne Bottoms, closed basin).

Records available.--October 1959 to September 1961 (annual peaks and base flow measurements only). April 1938 to September 1951, October 1961 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,628.16 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to July 3, 1938, staff gage at present site and datum. July 3, 1938 to Sept. 30, 1951, water-stage recorder at site 60 ft upstream at same datum. October 1959 to Mar. 12, 1962, crest-stage gage at present site and datum. March 12, 1962 to Sept. 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--21 years, 65.9 cfs (47,710 acre-ft per year).

Extremes.-- Maximum discharge during year, 1,220 cfs July 26 (gage height, 14.72 ft); minimum 1.8 cfs Sept. 29, 30.
1938-51, 1959-68: Maximum discharge, 12,400 cfs Oct. 20, 1941 (gage height, 20.49 ft), from rating curve extended above 2,700 cfs by logarithmic plotting; no flow at times during 1938, 1946.
Maximum stage known, 22.75 ft July 11, 1929, from information by Missouri Pacific Railroad Co.

Remarks.--Records good. Natural flow of stream affected by releases from Cheyenne Bottoms, which in turn is affected by diversions from Arkansas River and Walnut Creek. Records of chemical analyses and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	8.3	16	12	12	9.6	13	8.1	6.0	11	60	4.4
2	37	8.7	16	12	12	9.1	14	7.5	5.8	7.0	84	3.6
3	34	9.3	16	9.0	12	10	16	7.5	5.8	5.8	56	3.1
4	41	10	16	9.0	11	11	15	7.4	5.6	4.9	48	3.0
5	150	12	17	11	11	9.4	13	7.4	5.6	4.6	35	2.7
6	160	12	17	8.0	9.9	95	13	9.3	5.3	4.7	26	2.6
7	188	11	17	7.0	10	161	14	9.3	5.4	5.8	21	2.7
8	186	11	17	8.0	9.6	151	13	9.1	5.5	5.2	20	2.8
9	192	11	19	9.0	9.5	127	9.3	9.4	6.1	5.2	19	2.7
10	172	10	20	9.5	10	68	8.2	9.2	7.5	4.1	20	2.8
11	126	10	19	10	12	18	8.2	9.7	9.7	4.1	20	2.4
12	106	12	19	9.0	12	11	11	9.5	61	4.1	20	2.4
13	99	12	18	9.0	9.2	60	14	10	126	4.3	17	2.4
14	53	12	18	10	10	144	8.3	11	89	4.0	17	2.5
15	28	12	11	11	9.0	109	7.6	11	71	3.7	17	2.9
16	22	13	14	12	9.6	109	8.3	9.3	42	3.8	16	2.7
17	28	14	16	12	10	129	8.7	7.6	37	3.9	15	2.8
18	26	14	20	13	11	99	8.1	6.4	75	4.6	8.4	2.9
19	15	13	20	14	11	44	9.6	5.9	65	3.9	9.5	3.5
20	13	14	19	16	11	18	11	5.8	32	4.7	15	3.7
21	12	14	17	17	11	31	16	6.0	15	4.1	14	4.2
22	10	14	13	18	10	76	14	6.4	18	3.6	8.7	4.8
23	9.2	12	10	19	10	93	11	7.1	13	3.7	5.5	5.3
24	8.9	11	11	18	11	64	13	8.1	9.5	3.7	4.0	22
25	9.4	12	14	19	11	49	11	8.2	11	197	3.1	78
26	8.8	13	14	18	11	29	9.6	7.9	5.9	1,040	2.9	23
27	9.7	13	12	18	13	19	9.0	7.8	5.2	577	2.8	8.2
28	8.6	13	12	17	11	21	8.1	7.9	20	212	3.3	4.4
29	8.3	14	13	16	10	13	8.2	7.6	22	483	3.3	2.5
30	6.8	16	15	17	------	20	8.1	6.7	13	228	4.1	2.0
31	8.5	------	10	14	------	16	------	6.3	------	103	4.2	------
TOTAL	1,818.2	361.3	486	401.5	309.8	1,823.1	331.3	250.4	798.9	2,954.5	599.8	213.0
MEAN	58.7	12.0	15.7	13.0	10.7	58.8	11.0	8.08	26.6	95.3	19.3	7.10
MAX	192	16	20	19	13	161	16	11	126	1,040	84	78
MIN	6.8	8.3	10	7.0	9.0	9.1	7.6	5.8	5.2	3.6	2.8	2.0
AC-FT	3,610	717	964	796	614	3,620	657	497	1,580	5,860	1,190	422

CAL YR 1967: TOTAL 29,324.5 MEAN 80.3 MAX 1,470 MIN 5.0 AC-FT 58,160
WTR YR 1968: TOTAL 10,347.8 MEAN 28.3 MAX 1,040 MIN 2.0 AC-FT 20,520

PEAK DISCHARGE (BASE, 1,200 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7-26	2000	14.72	1,220				

7-1433.3 Arkansas River near Hutchinson, Kans.

Location.--Lat 37°56'47", long 97°46'29", on west line of sec.21, T. 24 S., R. 4 W., at downstream side of highway bridge, 3 miles north of Haven, 4.5 miles downstream from Cow Creek, 11 miles southeast of Hutchinson, Reno County, and at mile 800.3.

Drainage area.--38,910 sq mi of which 7,186 sq mi is probably noncontributing.

Records available.--October 1959 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,454.10 ft above mean sea level, datum of 1929. Prior to June 22, 1960, wire-weight gage and June 22, 1960 to Sept. 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--9 years, 592 cfs (428,600 acre-ft per year).

Extremes.--Maximum discharge during year, 1,410 cfs July 31 (gage height, 6.14 ft); minimum, 53 cfs Sept. 20, 21.
1959-68: Maximum discharge, 15,500 cfs June 27, 1965 (gage height, 11.72 ft); minimum, 30 cfs Oct. 4, 5, 1964.
Flood in May 1941 reached a stage of about 12.1 ft, the highest known since at least 1901, from information by local resident.

Remarks.--Records good except those for winter months, which are fair. Records of chemical analyses, water temperatures and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	381	266	230	190	333	256	210	157	327	225	741	88
2	339	255	251	200	316	258	217	160	176	205	508	71
3	323	277	223	170	323	254	396	165	161	189	423	93
4	307	247	210	170	307	262	343	159	158	174	347	148
5	290	244	214	190	299	275	236	151	151	166	268	128
6	313	239	213	170	302	269	205	181	146	158	235	120
7	990	229	208	150	288	261	203	220	143	147	207	111
8	1,090	231	206	150	283	309	207	175	144	140	185	100
9	703	233	214	170	282	372	210	168	152	140	184	85
10	537	228	210	200	284	378	204	163	164	158	175	82
11	488	222	204	220	271	349	189	168	162	152	169	80
12	443	219	204	200	274	311	173	164	147	154	161	73
13	409	234	201	180	279	269	174	158	140	139	153	74
14	403	248	207	180	269	271	176	166	158	129	153	73
15	400	265	209	190	275	303	168	155	280	167	148	72
16	342	265	217	200	279	355	171	159	310	148	202	82
17	321	260	244	210	279	320	172	159	234	130	243	79
18	306	252	260	230	264	325	172	155	221	120	226	68
19	284	235	245	250	246	344	202	147	209	121	174	65
20	286	251	249	268	251	330	222	155	234	109	154	61
21	278	252	273	303	251	288	185	165	358	98	138	61
22	258	246	276	326	249	259	193	171	353	94	127	73
23	249	246	277	296	244	243	179	173	411	95	121	114
24	256	249	263	293	252	270	177	168	704	92	128	88
25	246	260	274	296	264	280	173	205	610	112	108	71
26	250	249	257	308	265	254	169	174	435	109	99	65
27	247	241	275	337	265	248	168	162	348	240	96	76
28	241	241	280	344	268	238	165	157	300	663	115	85
29	245	250	274	358	258	231	166	147	252	718	141	69
30	246	231	277	345	------	224	161	139	225	644	126	63
31	262	------	200	333	------	230	------	736	------	1,270	104	------
TOTAL	11,733	7,365	7,345	7,427	8,020	8,836	5,986	5,682	7,813	7,206	6,359	2,518
MEAN	378	246	237	240	277	285	200	183	260	232	205	83.9
MAX	1,090	277	280	358	333	378	396	736	704	1,270	741	148
MIN	241	219	200	150	244	224	161	139	140	92	96	61
AC-FT	23,270	14,610	14,570	14,730	15,910	17,530	11,870	11,270	15,500	14,290	12,610	4,990

CAL YR 1967: TOTAL 231,299 MEAN 634 MAX 5,730 MIN 100 AC-FT 458,800
WTR YR 1968: TOTAL 86,290 MEAN 236 MAX 1,270 MIN 61 AC-FT 171,200

PEAK DISCHARGE (BASE, 1,800 CFS).--NO PEAKS ABOVE BASE.

7-1436. Little Arkansas River near Little River, Kans.

Location.--Lat 38°24'50", long 98°01'00", on west line of sec.8, T. 19 S., R. 6 W., at downstream side of county highway bridge, 1 mile northwest of Little River, Rice County.

Drainage area.--71 sq mi, approximately.

Records available.--October 1959 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,569.84 ft above mean sea level, datum of 1929. Prior to June 23, 1960, wire-weight gage at same site and datum. June 23, 1960 to September 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--9 years, 8.96 cfs (6,490 acre-ft per year).

Extremes.--Maximum discharge during year, 768 cfs July 25 (gage height, 15.85 ft); no flow many days.
1960-68: Maximum discharge, 3,050 cfs Aug. 6, 1967 (gage height, 18.10 ft); no flow at times in most years.

Remarks.--Records good except those for winter months, which are fair.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.2	.53	.60	1.5	.65	.40	.46	.16	0	.67	0
2	.83	.80	.62	.60	1.2	.65	.39	.44	.14	0	.50	0
3	.62	1.8	.55	.30	1.2	.53	.83	.41	.13	.01	20	0
4	.58	1.0	.62	.30	.86	.72	1.2	.31	.12	0	3.9	0
5	.53	1.0	.55	.40	.83	.62	.88	.27	.12	0	.98	.26
6	5.2	.90	.55	.20	.80	.59	.67	.39	.11	0	.48	.20
7	64	.95	.55	.10	.69	.59	.66	.59	.09	0	.29	.11
8	30	1.0	.72	.10	.60	.59	.63	.53	.08	0	.23	.09
9	4.6	.83	.53	.20	.70	.59	.55	.43	.18	0	.18	.03
10	1.6	.76	.55	.40	.70	.59	.55	.40	.26	0	.14	0
11	.86	.80	.69	.55	.50	.59	.55	.37	.24	0	.13	0
12	.86	.80	.72	.70	.50	.55	.57	.36	.16	0	.14	0
13	.83	.83	.72	.40	.40	.52	.59	.42	.14	0	.15	0
14	.76	.69	.69	.40	.40	.49	.66	.48	.09	0	.15	0
15	2.1	.76	.66	.80	.50	.51	.56	.43	76	0	.15	0
16	7.0	.83	.72	1.4	.60	.51	.56	.32	38	0	.15	0
17	4.1	.86	1.1	2.2	.50	.54	.60	.25	2.4	0	.13	0
18	1.9	.83	1.7	3.2	.48	.53	.60	.22	.89	0	.13	0
19	1.2	.72	1.8	3.8	.55	.51	.69	.22	.55	0	.12	0
20	.90	.76	1.5	3.7	.69	.50	1.0	.20	.44	0	.06	0
21	.83	.76	1.3	3.8	.50	.46	.96	.19	.35	0	.01	0
22	.83	.76	1.2	4.0	.50	.46	.88	.21	.26	0	0	0
23	.76	.62	1.0	4.0	.58	.46	.68	.27	.20	0	0	0
24	.76	.58	1.2	3.9	.69	.46	.59	.54	.15	0	0	0
25	.69	.55	1.2	3.3	.86	.46	.59	.37	.13	373	0	0
26	.72	.55	1.2	3.1	.90	.46	.51	.27	.06	228	0	0
27	.66	.50	1.1	2.6	.95	.46	.46	.22	.01	25	0	0
28	.80	.50	1.0	2.3	.90	.45	.45	.19	0	156	0	0
29	1.0	.48	1.0	2.3	.69	.43	.52	.18	0	24	0	0
30	.83	.50	1.1	2.0	------	.43	.49	.15	0	3.6	0	0
31	.83	------	.50	1.5	------	.45	------	.16	------	1.2	0	------
TOTAL	138.38	23.92	27.87	53.15	20.77	16.35	19.27	10.25	121.46	810.81	28.69	0.69
MEAN	4.46	.80	.90	1.71	.72	.53	.64	.33	4.05	26.2	.93	.023
MAX	64	1.8	1.8	4.0	1.5	.72	1.2	.59	76	373	20	.26
MIN	.53	.48	.50	.10	.40	.43	.39	.15	0	0	0	0
AC-FT	274	47	55	105	41	32	38	20	241	1,610	57	1.4

CAL YR 1967: TOTAL 3,678.30 MEAN 10.1 MAX 1,190 MIN 0 AC-FT 7,300
WTR YR 1968: TOTAL 1,271.61 MEAN 3.47 MAX 373 MIN 0 AC-FT 2,520

PEAK DISCHARGE (BASE, 150 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
6-15	2100	11.42	299	7-28	1515	12.25	365
7-25	1700	15.85	768				

7-1440. East Emma Creek near Halstead, Kans.

Location.--Lat 38°01'40", long 97°25'40", in NE¼NE¼ sec.28, T. 23 S., R. 1 W., on left bank 300 ft downstream from bridge on U.S. Highway 50, 4.6 miles northeast of Halstead, Harvey County, and 2.8 miles upstream from confluence with West Emma Creek.

Drainage area.--58 sq mi, approximately.

Records available.--October 1957 to March 1963 (annual peaks only). April 1963 to September 1968.

Gage.--Digital water-stage recorder. Altitude of gage is 1,390 ft (from topographic map). Prior to Mar. 25, 1963, crest-stage gage at site 400 ft upstream and at datum 3.05 ft higher. March 1963 to September 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--5 years, 16.2 cfs (11,730 acre-ft per year).

Extremes.--Maximum discharge during year, 2,320 cfs Oct. 7 (gage height, 17.43 ft); minimum, .02 cfs July 24.
1957-68: Maximum discharge, 18,000 cfs Aug. 5, 1960 (gage height, 28.18 ft, site and datum then in use); from rating curve extended above 7,800 cfs on basis of logarithmic plotting; no flow at times during most years.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	4.6	3.1	3.0	3.2	2.1	1.9	1.9	5.5	.66	3.2	11
2	2.0	5.1	3.5	3.2	3.0	2.2	2.1	1.8	5.2	.57	2.3	4.5
3	1.6	6.5	3.2	3.2	2.9	2.1	30	1.8	3.4	.49	1.8	2.5
4	1.6	6.2	2.8	3.0	2.7	2.0	13	1.6	2.7	.46	1.2	7.6
5	1.6	5.0	2.9	3.1	2.5	2.0	5.6	1.6	2.6	.43	.88	2.5
6	3.9	4.9	2.8	3.0	2.6	2.0	3.2	2.2	5.3	.37	.67	1.7
7	1,310	4.4	2.6	2.2	2.5	2.0	2.5	4.0	3.2	.30	.53	1.5
8	267	4.2	2.7	2.6	2.5	2.1	2.1	3.4	2.2	.24	.46	1.2
9	52	4.2	2.6	2.8	2.5	2.1	1.7	3.0	2.3	.22	.37	1.0
10	27	4.3	2.6	3.5	2.6	2.1	1.7	2.8	5.0	.19	.31	1.1
11	19	4.1	2.4	3.5	2.6	2.0	1.6	3.2	18	.15	.37	1.0
12	15	3.6	2.3	3.2	2.6	1.9	1.5	3.5	7.2	.13	.42	.90
13	12	3.3	2.2	2.7	2.4	1.8	1.6	3.0	3.3	.13	.44	.72
14	9.9	3.3	2.0	2.5	2.3	1.9	1.5	2.9	1.8	.12	.44	.63
15	8.4	3.2	1.9	2.8	2.4	1.9	1.3	2.7	78	.13	.45	.60
16	7.7	3.6	2.1	3.1	2.4	1.9	1.4	2.2	237	.15	.40	.59
17	7.1	3.7	2.8	3.6	2.4	1.9	1.5	1.7	74	.12	.39	.63
18	6.3	3.5	4.2	4.3	2.3	2.0	1.5	1.5	16	.11	.87	.64
19	6.0	3.5	4.6	4.1	2.3	2.0	2.8	1.4	6.8	.10	.72	.60
20	5.7	3.5	4.2	4.2	2.3	1.9	4.2	1.4	3.8	.09	.51	.46
21	5.6	3.6	3.9	4.2	2.4	1.9	5.6	1.5	2.5	.08	.42	.45
22	5.1	3.5	3.2	4.3	2.3	1.8	7.6	1.6	1.8	.07	.33	.45
23	4.9	3.5	2.9	4.3	2.2	1.7	4.2	2.0	1.4	.05	.26	.47
24	5.3	3.3	3.0	4.3	2.2	1.8	3.0	2.1	1.3	.08	8.1	.42
25	5.0	3.1	3.2	4.2	2.3	1.8	2.6	13	1.7	297	1.4	.39
26	5.1	2.9	3.2	3.9	2.3	1.7	2.3	33	1.4	365	.53	.33
27	4.9	2.7	3.5	3.7	2.3	1.9	2.2	16	1.1	41	.39	.22
28	5.0	2.8	3.5	3.7	2.4	1.9	2.2	8.4	.96	271	.39	.17
29	4.9	3.2	3.3	3.5	2.2	2.0	2.0	4.9	.80	39	12	.14
30	4.4	3.2	3.6	3.2	------	2.0	1.8	3.3	.73	8.8	77	.11
31	4.3	------	3.5	3.2	------	2.0	------	9.2	------	4.4	34	------
TOTAL	1,821.2	116.5	94.3	106.1	71.6	60.4	116.2	142.6	496.99	1,031.64	151.55	44.52
MEAN	58.7	3.88	3.04	3.42	2.47	1.95	3.87	4.60	16.6	33.3	4.89	1.48
MAX	1,310	6.5	4.6	4.3	3.2	2.2	30	33	237	365	77	11
MIN	1.6	2.7	1.9	2.2	2.2	1.7	1.3	1.4	.73	.05	.26	.11
AC-FT	3,610	231	187	210	142	120	230	283	986	2,050	301	88

CAL YR 1967: TOTAL 9,040.14 MEAN 24.8 MAX 1,310 MIN 0 AC-FT 17,930
WTR YR 1968: TOTAL 4,253.60 MEAN 11.6 MAX 1,310 MIN .05 AC-FT 8,440

PEAK DISCHARGE (BASE, 100 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	1215	17.43	2,320	7-25	2130	13.87	1,120
6-16	1245	10.07	380	7-28	0815	11.20	542

7-1442. Little Arkansas River at Valley Center, Kans.

Location.--Lat 37°49'56", long 97°23'16", river gage is in W½ sec.36, T. 25 S., R. 1 W., at downstream side of highway bridge, half a mile west of Valley Center, Sedgwick County, and 17.5 miles upstream from mouth. Little Arkansas River Floodway gage is in NE¼ sec.34, T. 25 S., R. 1 W., at downstream side of highway bridge, 1.2 miles northwest of river gage.

Drainage area.--1,327 sq mi, of which about 77 sq mi is probably noncontributing.

Records available.--June 1922 to September 1968. Monthly discharge only for some periods, published in WSP 1311.

Gage.--River gage is digital water-stage recorder. Datum of gage is 1,327.66 ft above mean sea level, datum of 1929. Prior to Feb. 12, 1935, chain gage at site 2 miles downstream at different datum. Feb. 12, 1935 to July 1, 1951, graphic water-stage recorder; July 2, 1951 to Feb. 16, 1952, wire-weight gage and Feb. 17, 1952 to Sept. 30, 1964 graphic water-stage recorder at present site and datum. Floodway gage is graphic water-stage recorder. Datum of floodway gage is 1,340.00 ft above mean sea level (levels by Wichita-Valley Center Flood Control project).

Average discharge.--46 years, 246 cfs (178,100 acre-ft per year).

Extremes.--Maximum discharge during year, 2,570 cfs Oct. 8 at river gage (gage height, 10.58 ft); 4,730 cfs Oct. 8 at floodway gage (gage height, 10.16 ft); combined discharge, 7,300 cfs Oct. 8; minimum, 11 cfs July 16.
1922-68: Maximum discharge, 32,000 cfs Apr. 16, 1945 (gage height, 22.05 ft), from rating curve extended above 12,000 cfs on basis of slope-area measurement of peak flow; minimum, 1.0 cfs Oct. 6, 1956.

Remarks.--Combined records good. Natural flow of stream affected by diversions and ground-water withdrawal for irrigation and municipal supply. Since May 1957, part of high-water flow bypasses river gage through floodway channel for which separate records are computed; figures representing combined discharge are given herein. Records of chemical analyses for the water year 1968 are published in Part 2 of this report. Discharge, in cubic feet per second, through floodway occurred only on the days given in the following table:

1967		1968	
Oct. 7	1,040	June 16	794
Oct. 8	3,890	June 17	1
Oct. 9	2,310		
Oct. 10	1,500		
Oct. 11	52		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	209	76	55	53	62	52	34	53	221	40	148	133
2	147	76	56	53	59	47	34	50	118	38	99	100
3	118	78	57	45	56	40	105	48	93	37	75	99
4	100	84	56	50	55	37	187	47	72	37	62	1,070
5	90	73	56	53	54	46	196	49	54	36	53	467
6	83	72	55	44	52	46	183	48	45	32	46	167
7	2,060	70	53	40	51	45	113	52	42	30	41	88
8	6,410	69	54	45	50	44	80	53	37	28	40	61
9	4,670	68	53	50	50	43	65	49	40	27	36	49
10	3,730	66	53	56	90	38	58	49	49	24	33	42
11	1,320	65	53	56	53	36	52	58	56	23	37	36
12	415	64	54	57	49	42	47	60	67	22	29	30
13	281	63	54	45	46	42	45	59	58	21	27	26
14	208	62	53	40	46	41	44	51	46	16	25	28
15	172	62	51	46	46	40	42	48	350	15	22	24
16	148	60	52	46	46	39	42	45	3,060	14	28	23
17	134	58	55	52	46	39	42	44	1,600	18	26	23
18	129	57	61	60	46	38	42	41	646	25	38	23
19	118	58	67	57	46	38	210	37	300	19	46	22
20	107	57	67	57	46	38	160	32	185	19	31	21
21	102	56	75	60	46	36	297	28	126	20	24	20
22	96	56	75	62	45	35	1,250	32	99	13	18	20
23	90	55	68	65	46	34	380	35	79	20	18	36
24	85	56	65	71	46	35	203	47	69	19	22	58
25	81	55	62	78	47	35	138	65	63	36	70	34
26	81	55	60	76	47	36	99	146	64	1,430	31	25
27	75	55	61	74	46	36	78	163	55	1,310	21	23
28	72	55	61	72	46	36	68	124	49	1,210	19	20
29	70	55	60	69	39	36	55	83	45	1,310	25	19
30	68	55	58	66	------	36	56	63	44	506	188	19
31	69	------	54	63	------	36	------	156	------	291	242	------
TOTAL	21,538	1,891	1,814	1,761	1,457	1,222	4,405	1,915	7,832	6,686	1,620	2,806
MEAN	695	63.0	58.5	56.8	50.2	39.4	147	61.8	261	216	52.3	93.5
MAX	6,410	84	75	78	90	52	1,250	163	3,060	1,430	242	1,070
MIN	68	55	51	40	39	34	34	28	37	13	18	19
AC-FT	42,720	3,750	3,600	3,490	2,890	2,420	8,740	3,800	15,530	13,260	3,210	5,570

CAL YR 1967: TOTAL 138,394 MEAN 379 MAX 6,410 MIN 12 AC-FT 274,500
WTR YR 1968: TOTAL 54,947 MEAN 150 MAX 6,410 MIN 13 AC-FT 109,000

PEAK DISCHARGE (BASE, 1,300 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-8	0400	-	7,300	7-26	2000	8.74	1,950
4-22	1300	7.99	1,660	7-29	0300	8.20	1,730
6-16	0600	-	4,090	9-04	1400	7.22	1,420

7-1443. Arkansas River at Wichita, Kans.

Location.--Lat 37°41'08", long 97°20'34", river gage is in sec. 20, T. 27 S., R. 1 E., near left bank on downstream side of pier of Douglas Avenue Bridge in Wichita, half a mile downstream from Little Arkansas River and at mile 762.9. Big Slough-Cowskin Floodway gage is in sec. 11, T. 27 S., R. 1 W., at downstream side of Bickel Avenue Bridge in Wichita, 1 mile downstream from control structure and 4 miles northwest of Douglas Avenue gage.

Drainage area.--40,420 sq mi, of which 7,263 sq mi is probably noncontributing.

Records available.--July 1934 to September 1968. Gage-height records collected at same site since 1897 are contained in reports of U.S. Weather Bureau.

Gage.--River gage is graphic water-stage recorder. Datum of gage is 1,277.81 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1956, datum of gage was 3.00 ft higher. Floodway gage is graphic water-stage recorder. Datum of floodway gage is 1,300.00 ft above mean sea level (levels by Wichita-Valley Center Flood Control Project).

Average discharge.--34 years, 1,039 cfs (752,200 acre-ft per year).

Extremes.--Maximum discharge during year, 6,620 cfs Oct. 8 at river gage (gage height, 8.06 ft); 706 cfs Oct. 8 at floodway gage (gage height 8.18 ft); combined discharge, 7,330 cfs Oct. 8; minimum daily at river gage, 95 cfs Sept. 30.
1934-68: Maximum discharge, 30,700 cfs May 17, 1957; minimum, 3 cfs Sept. 3, 1934.
Floods of May 18, 1877 and July 8, 1904, reached stages of 21 and 20.3 ft respectively, present river gage site and datum (from reports of U.S. Weather Bureau).

Remarks.--Records good. Some diurnal fluctuation of low flow from dam at mouth of Little Arkansas River. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals, diversions for irrigation, and return flow from irrigated areas. Since May 1957, part of high-water flow bypasses river gage through floodway channel for which separate records are computed; figures representing floodway discharge and combined discharge are given herein. Discharge, in cubic feet per second, through floodway occurred only on the day given in following table:

1967

Oct. 8 277

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	830	350	355	230	420	364	301	262	876	315	1,240	295
2	630	425	373	230	378	364	296	250	632	295	795	216
3	552	396	364	190	378	346	642	232	436	275	592	345
4	504	368	368	190	382	346	644	232	388	250	508	1,400
5	480	350	364	210	378	346	580	214	310	235	436	1,380
6	480	346	360	200	373	355	540	280	250	198	365	560
7	1,040	368	346	180	368	360	424	334	196	184	330	340
8	6,450	350	342	180	360	368	328	310	135	175	290	275
9	5,360	337	342	200	360	373	292	262	174	163	260	216
10	4,580	328	342	250	368	456	280	244	286	155	260	188
11	2,920	319	337	278	373	445	268	268	274	151	508	171
12	1,220	324	328	256	355	435	262	268	262	155	310	163
13	872	328	314	252	342	405	250	310	220	159	250	155
14	732	332	301	256	346	386	238	268	196	155	230	143
15	672	337	306	252	346	382	226	250	322	151	245	143
16	606	350	324	252	360	382	226	214	2,550	167	225	139
17	552	355	368	278	364	450	238	202	2,410	163	245	139
18	492	350	378	319	368	462	220	196	1,360	163	488	135
19	445	350	364	341	368	430	388	179	739	159	400	131
20	420	346	360	360	368	425	514	168	508	151	285	119
21	405	346	373	400	360	410	469	174	406	131	216	115
22	386	324	378	420	364	386	1,600	190	430	119	175	324
23	373	296	382	391	355	355	1,310	196	436	111	163	412
24	364	324	400	378	364	332	586	208	450	107	147	265
25	360	355	400	386	368	337	450	310	704	123	159	211
26	355	355	391	396	368	364	382	340	638	752	163	147
27	346	350	382	400	368	360	346	400	534	1,750	147	127
28	346	350	391	410	364	350	322	370	456	1,500	130	115
29	350	350	382	425	355	342	292	310	400	2,050	163	103
30	350	360	382	425	------	332	274	280	345	1,380	206	95
31	350	------	324	430	------	328	------	443	------	1,030	406	------
TOTAL	33,822	10,419	11,121	9,365	10,621	11,776	13,188	8,164	17,323	12,872	10,337	8,567
MEAN	1,091	347	359	302	366	380	440	263	577	415	333	286
MAX	6,450	425	400	430	420	462	1,600	443	2,550	2,050	1,240	1,400
MIN	346	296	301	180	342	328	220	168	135	107	130	95
AC-FT	67,080	20,670	22,060	18,580	21,070	23,360	26,160	16,190	34,360	25,530	20,500	16,990

CAL YR 1967: TOTAL 376,908 MEAN 1,033 MAX 11,000 MIN 88 AC-FT 747,600
WTR YR 1968: TOTAL 157,575 MEAN 431 MAX 6,450 MIN 95 AC-FT 312,600

PEAK DISCHARGE (BASE, 3,700 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-8	1200	--	7,330				

7-1447.8 North Fork Ninnescah River above Cheney Reservoir, Kans.

Location.--Lat 37°50'41", long 97°56'09", in NE¼SW¼ sec.25, T. 25 S., R. 6 W., at downstream side of bridge on State Highway 17, 12 miles south of Hutchinson, Reno County, 12.5 miles upstream from Cheney Dam, and at mile 28.2.

Drainage area.--787 sq mi, of which 237 sq mi is probably noncontributing.

Records available.--July 1965 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,431.75 ft above mean sea level, datum of 1929, supplementary adjustment of 1957.

Extremes.--Maximum discharge during year, 1,380 cfs May 31 (gage height, 5.88 ft); no flow for part of day Aug. 23.
1965-68: Maximum discharge, 2,150 cfs Sept. 21, 1965 (gage height, 6.65 ft); no flow July 14, 1966, part of day Aug. 23, 1968.

Remarks.--Records good except those for winter months, which are fair.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	60	55	55	80	78	44	48	633	19	20	17
2	31	61	61	55	75	78	45	43	228	23	19	14
3	30	60	64	45	71	71	281	39	139	22	17	13
4	30	60	62	50	69	69	322	36	99	20	13	13
5	29	58	60	50	67	69	160	36	73	18	9.2	13
6	30	56	56	45	64	66	126	49	62	18	5.6	12
7	90	55	53	35	62	64	108	81	55	17	3.8	11
8	121	56	51	40	60	61	95	89	51	17	2.2	8.8
9	97	54	51	45	62	61	83	80	54	15	1.8	7.9
10	80	53	51	50	64	62	76	76	61	14	3.8	7.8
11	67	54	51	60	64	64	69	72	66	13	4.3	6.1
12	58	52	53	60	64	63	62	75	53	12	6.6	5.6
13	53	48	53	50	60	60	60	78	45	11	7.8	5.2
14	50	48	51	50	65	58	61	83	41	9.1	7.0	3.8
15	48	49	55	55	74	60	56	76	42	8.9	5.6	4.3
16	46	50	56	60	65	60	52	65	55	9.2	3.8	7.8
17	46	50	80	70	61	56	51	58	79	11	6.6	7.8
18	47	50	97	80	61	54	51	51	82	7.8	13	7.0
19	46	50	110	90	60	53	58	48	67	7.0	11	6.1
20	45	50	105	100	61	53	92	47	55	6.6	7.0	5.2
21	45	50	95	110	55	50	117	49	45	5.6	4.8	4.8
22	43	50	83	115	50	50	155	56	38	5.2	2.2	13
23	38	50	70	105	55	50	99	56	32	4.3	1.8	187
24	38	50	75	105	65	52	77	56	28	4.3	5.6	27
25	40	48	80	97	70	53	67	87	32	7.8	2.5	17
26	41	48	70	95	71	52	61	109	33	6.1	1.2	14
27	42	48	75	90	71	49	58	94	31	4.8	.75	11
28	42	47	65	85	71	48	55	78	28	23	5.6	8.8
29	44	52	75	83	70	47	54	66	24	23	16	7.4
30	45	55	65	83	------	46	52	58	19	21	21	6.4
31	51	------	50	78	------	47	------	615	------	20	21	------
TOTAL	1,548	1,572	2,078	2,191	1,887	1,804	2,747	2,554	2,350	403.7	250.55	472.8
MEAN	49.9	52.4	67.0	70.7	65.1	58.2	91.6	82.4	78.3	13.0	8.08	15.8
MAX	121	61	110	115	80	78	322	615	633	23	21	187
MIN	29	47	50	35	50	46	44	36	19	4.3	.75	3.8
AC-FT	3,070	3,120	4,120	4,350	3,740	3,580	5,450	5,070	4,660	801	497	938

CAL YR 1967: TOTAL 26,489 MEAN 72.4 MAX 862 MIN 15 AC-FT 52,540
WTR YR 1968: TOTAL 19,858.05 MEAN 54.3 MAX 633 MIN .75 AC-FT 39,390

PEAK DISCHARGE (BASE, 1,300 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
5-31	1800	5.88	1,380				

7-1447.9 Cheney Reservoir near Cheney, Kans.

Location.--Lat 37°43'34", long 97°47'38", in NE¼SE¼ sec.6, T. 27 S., R. 4 W., in control-house structure at outlet works of Cheney Dam on North Fork Ninnescah River, 6 miles north of Cheney, Sedgwick County, and at mile 15.9.

Drainage area.--901 sq mi, of which 237 sq mi is probably noncontributing.

Records available.--November 1964 to September 1968.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by U.S. Bureau of Reclamation).

Extremes.--Maximum elevation during year, 1420.03 ft June 17, 18 (contents, 152,500 acre-ft); minimum, 1416.77 ft Oct. 3, 4 (contents, 125,100 acre-ft).
1964-68: Maximum elevation, that of June 17, 18, 1968; minimum elevation since storage began, 1,385.30 ft Nov. 17, 1964 (contents, 4,800 acre-ft).

Remarks.--Reservoir is formed by compacted earth-fill dam. Storage began Nov. 17, 1964. Total capacity, 566,300 acre-ft, consisting of the following: dead storage, 979 acre-ft below elevation 1,378.5 ft; fish and wildlife storage, 14,310 acre-ft between elevations 1,378.5 and 1,392.9 ft; conservation pool, 151,800 acre-ft between elevations 1,392.9 and 1,421.6 ft; flood control pool, 80,860 acre-ft between elevations 1,421.6 and 1,429.0 ft (crest of uncontrolled spillway); and uncontrolled storage, 318,300 acre-ft between elevations 1,429.0 and 1,447.8 ft. Reservoir is used for supplemental water supply for municipal and industrial uses in the city of Wichita, fish and wildlife conservation, flood control, and recreational purposes in Cheney Division, Wichita project. Figures given herein represent elevations above mean sea level.

Capacity table (elevation, in feet, and contents, in acre-feet)

1,416	119,100
1,418	135,000
1,420	152,200
1,422	170,900

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.80	16.90	17.17	17.42	17.91	18.15	18.25	19.28	19.83	19.83	19.38	18.89
2	16.80	16.90	17.13	17.49	17.93	18.16	18.25	19.28	19.85	19.80	19.36	18.92
3	16.77	16.92	17.07	17.46	17.95	18.15	18.60	19.30	19.87	19.75	19.33	18.97
4	16.77	16.95	17.12	17.48	17.97	18.13	18.60	19.30	19.87	19.73	19.30	18.97
5	16.80	16.98	17.13	17.50	17.98	18.15	18.53	19.29	19.87	19.72	19.28	18.91
6	16.92	16.99	17.25	17.54	18.01	18.15	18.50	19.27	19.87	19.71	19.25	18.86
7	17.05	16.97	17.15	17.54	18.00	18.10	18.61	19.35	19.87	19.70	19.21	18.86
8	17.05	16.97	17.17	17.54	17.98	18.14	18.60	19.35	19.88	19.68	19.18	18.92
9	16.97	16.99	17.20	17.54	18.00	18.20	18.58	19.36	19.91	19.68	19.18	18.83
10	16.97	16.99	17.17	17.53	18.00	18.20	18.57	19.35	19.94	19.68	19.16	18.79
11	17.02	17.00	17.18	17.56	18.00	18.29	18.57	19.42	19.95	19.68	19.15	18.75
12	17.04	17.02	17.18	17.59	18.02	18.20	18.57	19.43	19.96	19.63	19.15	18.75
13	17.04	17.00	17.17	17.60	18.02	18.14	18.58	19.41	19.96	19.60	19.14	18.70
14	17.04	17.02	17.18	17.60	17.99	18.20	18.57	19.45	19.96	19.56	19.11	18.70
15	17.04	17.02	17.15	17.60	18.02	18.23	18.56	19.42	20.00	19.53	19.07	18.66
16	17.03	17.05	17.11	17.61	18.05	18.22	18.59	19.49	20.02	19.50	19.06	18.70
17	17.01	17.08	17.15	17.64	18.02	18.16	18.65	19.47	20.03	19.52	19.09	18.65
18	16.98	17.08	17.25	17.65	18.02	18.28	18.58	19.44	20.03	19.57	19.10	18.62
19	16.96	17.08	17.28	17.67	18.02	18.33	18.60	19.42	20.02	19.53	19.07	18.61
20	16.96	17.08	17.38	17.70	18.09	18.35	18.74	19.40	19.97	19.52	19.06	18.55
21	16.95	17.08	17.37	17.70	18.06	18.36	19.15	19.41	19.98	19.48	19.04	18.55
22	16.92	17.02	17.35	17.70	18.06	18.28	19.43	19.45	19.98	19.47	19.02	18.57
23	16.92	17.02	17.35	17.70	18.05	18.26	19.27	19.47	19.94	19.45	19.01	18.57
24	16.91	17.02	17.36	17.75	18.05	18.25	19.27	19.46	19.95	19.44	18.95	18.60
25	16.91	17.05	17.36	17.81	18.10	18.25	19.28	19.55	19.95	19.40	18.93	18.62
26	16.91	17.07	17.34	17.82	18.14	18.20	19.28	19.55	19.92	19.42	18.92	18.62
27	16.91	17.05	17.34	17.85	18.13	18.28	19.27	19.56	19.91	19.45	18.90	18.58
28	16.91	17.03	17.35	17.95	18.25	18.27	19.28	19.55	19.87	19.46	18.93	18.56
29	16.91	17.10	17.40	17.92	18.12	18.28	19.28	19.55	19.86	19.43	18.90	18.54
30	16.91	17.10	17.53	17.90	------	18.28	19.28	19.55	19.84	19.50	18.92	18.51
31	16.91	------	17.44	17.88	------	18.33	------	19.79	------	19.43	18.92	------
MAX	17.05	17.10	17.53	17.95	18.25	18.36	19.43	19.79	20.03	19.83	19.38	18.97
MIN	16.77	16.90	17.07	17.42	17.91	18.10	18.25	19.27	19.83	19.40	18.90	18.51
(+)	126,100	127,700	130,400	134,000	136,000	137,800	145,900	150,400	150,800	147,200	142,700	139,300
(±)	+700	+1,600	+2,700	+3,600	+2,000	+1,800	+8,100	+4,500	+400	-3,600	-4,500	-3,400

CAL YR 1967 ..... (±) +34,450
WTR YR 1968 ..... (±) +13,900

+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
± CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 1,400 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.

7-1447.95 North Fork Ninnescah River at Cheney Dam, Kans.

Location.--Lat 37°43'17", long 97°47'39", in SW¼SE¼ sec.6, T. 27 S., R. 4 W., 1,400 ft downstream from Cheney Dam, 22 miles west of Wichita, Sedgwick County, and at mile 15.5.

Drainage area.--901 sq mi, of which 237 sq mi is probably noncontributing.

Records available.--October 1964 to September 1968.

Gage.--Digital water-stage recorder and concrete Parshall flume. Datum of gage is 1,367.022 ft above mean sea level (Bureau of Reclamation bench mark).

Extremes.--Maximum discharge during year, 19 cfs Aug. 12 (gage height, 1.40 ft); no flow Jan 7-9, 12-16 (result of freezeup).
1964-68: Maximum discharge, 1,600 cfs May 10, 1966; no flow at times in 1966, 1968.

Remarks.--Records good above 1 cfs and fair below. Flow regulated by Cheney Dam (see station 7-1447.9).

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.32	.22	.29	.25	.43	.31	.25	.46	.34	.33	.26	.20
2	.30	.28	.32	.25	.39	.31	.34	.44	.38	.27	.25	.22
3	.31	.22	.28	.10	.45	.27	.60	.46	.36	.27	.23	.24
4	.27	.20	.30	.10	.41	.30	.29	.43	.35	.27	.22	.43
5	.26	.21	.30	.15	.40	.29	.30	.42	.33	.27	.21	.25
6	.36	.20	.30	.10	.43	.28	.33	.54	.33	.27	.21	.27
7	.58	.22	.28	0	.39	.30	.35	.53	.32	.26	.20	.28
8	.24	.22	.30	0	.37	.28	.33	.47	.33	.25	.19	.29
9	.21	.21	.29	0	.37	.32	.33	.45	.37	.26	.20	.26
10	.20	.22	.27	.10	.39	.31	.34	.45	.41	.24	.26	.29
11	.24	.20	.28	.10	.29	.29	.34	.50	.35	.24	.23	.32
12	.24	.20	.30	0	.34	.22	.37	.42	.32	.23	5.8	.33
13	.22	.22	.26	0	.30	.28	.40	.44	.31	.24	.24	.32
14	.21	.22	.27	0	.31	.30	.37	.39	.32	.23	.20	.31
15	.22	.22	.32	0	.31	.28	.37	.34	.55	.31	.20	.32
16	.20	.29	.36	0	.30	.25	.42	.33	.40	.25	.20	.34
17	.21	.27	.36	.10	.24	.27	.41	.31	.36	.23	.24	.28
18	.20	.25	.33	.20	.27	.30	.43	.29	.35	.24	.32	.29
19	.23	.28	.30	.30	.27	.24	.69	.26	.35	.22	.19	.29
20	.22	.28	.30	.50	.30	.26	.47	.30	.34	.22	.19	.31
21	.20	.28	.33	.71	.29	.23	1.9	.29	.27	.21	.19	.33
22	.20	.27	.33	.68	.32	.27	.63	.32	.28	.20	.18	.52
23	.21	.30	.41	.46	.35	.23	.50	.33	.28	.20	.18	.40
24	.20	.29	.36	.51	.36	.26	.50	.28	.30	.20	.18	.33
25	.20	.28	.29	.48	.33	.25	.52	.38	.41	.31	.18	.33
26	.21	.27	.34	.47	.30	.28	.51	.28	.26	.21	.18	.30
27	.20	.25	.35	.45	.29	.29	.53	.33	.28	.57	.18	.32
28	.21	.30	.37	.47	.30	.29	.54	.30	.27	.35	.30	.31
29	.23	.31	.35	.46	.26	.29	.52	.30	.27	.26	.30	.32
30	.21	.27	.37	.44	------	.31	.51	.34	.28	.23	.23	.33
31	.29	------	.35	.50	------	.30	------	.45	------	.21	.19	------
TOTAL	7.60	7.45	9.86	7.88	9.76	8.66	14.39	11.83	10.07	8.05	12.33	9.33
MEAN	.25	.25	.32	.25	.34	.28	.48	.38	.34	.26	.40	.31
MAX	.58	.31	.41	.71	.45	.32	1.9	.54	.55	.57	5.8	.52
MIN	.20	.20	.26	0	.24	.22	.25	.26	.26	.20	.18	.20
AC-FT	15	15	20	16	19	17	29	23	20	16	24	19

CAL YR 1967: TOTAL 1,650.71 MEAN 4.51 MAX 23 MIN .10 AC-FT 3,270
WTR YR 1968: TOTAL 117.21 MEAN .32 MAX 5.8 MIN 0 AC-FT 232

7-1448.5 South Fork South Fork Ninnescah River near Pratt, Kans.

Location.--Lat 37°35'10", long 98°49'40", on west line sec.26, T. 28 S., R. 14 W., at downstream side of highway bridge, 6 miles southwest of Pratt, Pratt County, and 6.5 miles upstream from mouth.

Drainage area.--21 sq mi, approximately.

Records available.--March 1961 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 1,920 ft (from topographic map).

Average discharge.--7 years, .72 cfs (521 acre-ft per year).

Extremes.--Maximum discharge during year, 62 cfs Oct. 7 (gage height, 3.50 ft); no flow for many days.
1961-68: Maximum discharge, 1,080 cfs Aug. 19, 1961 (gage height, 5.90 ft); no flow for many days.

Remarks.--Records poor.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	3.1	0	0	0	0
7	7.0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	------	0	0	0	0	0	0	0
31	0	------	0	0	------	0	------	0	------	0	0	------
TOTAL	7.0	0	0	0	0	0	0	3.1	0	0	0	0
MEAN	.23	0	0	0	0	0	0	.10	0	0	0	0
MAX	7.0	0	0	0	0	0	0	3.1	0	0	0	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	14	0	0	0	0	0	0	6.1	0	0	0	0

CAL YR 1967: TOTAL 90.26 MEAN 0.247 MAX 46 MIN 0 AC-FT 179
WTR YR 1968: TOTAL 10.1 MEAN 0.028 MAX 7.0 MIN 0 AC-FT 20

PEAK DISCHARGE (BASE, 100 CFS).--NO PEAKS ABOVE BASE.

7-1452. South Fork Ninnescah River near Murdock, Kans.

Location.--Lat 37°34', long 97°51', on line between sec.34, T. 28 S., R. 5 W., and sec.3, T. 29 S., R. 5 W., near right bank on downstream side of pier of county highway bridge, 4 miles southeast of Murdock, Kingman County, and at mile 68.0.

Drainage area.--650 sq mi, of which 107 sq mi is probably noncontributing.

Records available.--August 1950 to September 1968 (annual peaks only, October 1959 to May 1964).

Gage.--Water-stage recorder. Datum of gage is 1,357.81 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Mar. 30, 1951, wire-weight gage at same site and datum. Mar. 30, 1951, to Sept. 30, 1959, water-stage recorder and Oct. 1, 1959 to June 3, 1964, crest-stage gage, both at same site and datum.

Average discharge.--13 years, 179 cfs (129,600 acre-ft per year).

Extremes.--Maximum discharge during year, 3,600 cfs Apr. 22 (gage height, 7.72 ft); minimum, 13 cfs Feb. 29, result of freezeup.
1950-68: Maximum discharge 25,900 cfs June 26, 1957 (gage height, 11.87 ft).
1950-59, 1964-68: Minimum, 5.0 cfs Aug. 5, 1964.

Remarks.--Records good except those for winter months, which are fair. Records of chemical analyses, suspended sediment loads and continuous conductivity for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	139	139	120	134	112	81	134	184	84	67	88
2	57	129	124	120	124	112	92	124	149	189	57	77
3	60	134	120	80	124	92	433	120	116	116	50	74
4	53	149	124	80	124	96	450	116	108	84	44	77
5	64	149	124	100	120	92	219	104	88	67	41	64
6	74	144	112	80	116	96	169	96	77	57	35	57
7	209	134	124	70	112	100	144	264	81	60	23	57
8	144	134	124	70	112	104	124	279	84	57	19	57
9	116	129	120	85	116	104	120	204	96	53	19	53
10	96	116	129	105	112	112	124	159	120	53	32	50
11	104	108	124	130	112	108	112	164	149	50	415	50
12	124	100	116	110	120	104	100	174	116	50	124	50
13	116	96	110	90	110	108	104	164	96	44	60	44
14	96	104	90	90	110	112	104	164	84	38	41	47
15	96	108	110	105	120	112	104	154	100	44	44	53
16	100	112	130	130	112	104	100	124	174	44	47	60
17	96	112	150	160	104	100	100	124	184	44	77	67
18	84	112	170	190	100	108	81	139	144	38	134	64
19	84	120	184	230	112	116	112	129	116	38	84	60
20	88	124	164	250	112	104	139	129	100	41	50	50
21	96	129	164	250	90	100	192	149	88	35	41	53
22	92	139	150	239	90	108	1,820	159	77	29	32	106
23	88	139	130	164	110	104	416	164	77	32	29	272
24	92	139	140	149	140	108	235	159	74	26	32	74
25	88	139	150	149	154	108	184	189	104	35	35	60
26	96	139	130	144	149	108	159	284	112	67	38	57
27	100	139	120	134	124	104	149	244	81	67	35	57
28	100	144	110	139	124	104	149	199	67	239	50	57
29	96	139	120	134	100	104	144	174	64	174	92	53
30	96	144	140	124	------	100	139	154	60	116	112	50
31	124	------	100	129	------	92	------	204	------	84	104	------
TOTAL	2,989	3,843	4,042	4,150	3,387	3,236	6,599	5,144	3,170	2,155	2,063	2,038
MEAN	96.4	128	130	134	117	104	220	166	106	70.0	66.6	67.9
MAX	209	149	184	250	154	116	1,820	284	184	239	415	272
MIN	53	96	90	70	90	92	81	96	60	26	19	44
AC-FT	5,930	7,620	8,020	8,230	6,720	6,420	13,090	10,200	6,290	4,270	4,090	4,040

CAL YR 1967: TOTAL 56,942 MEAN 156 MAX 7,450 MIN 30 AC-FT 113,000
WTR YR 1968: TOTAL 42,816 MEAN 117 MAX 1,820 MIN 19 AC-FT 84,920

PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
4-22	0500	7.72	3,600				

7-1455. Ninnescah River near Peck, Kans.

Location.--Lat 37°28', long 97°25', in NW¼ sec.10, T. 30 S., R. 1 W., at downstream side of highway bridge, 3 miles southwest of Peck, Sumner County, and at mile 31.6.

Drainage area.--2,129 sq mi, of which 344 sq mi is probably noncontributing.

Records available.--October 1937 to September 1968. Prior to April 1938 monthly discharge only, published in WSP 1311.

Gage.--Digital water-stage recorder. Datum of gage is 1,222.38 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Feb. 4, 1939, wire-weight gage at present site and datum. Feb. 4, 1939 to Apr. 5, 1966, graphic water-stage recorder at present site and datum.

Average discharge.--31 years, 500 cfs (362,000 acre-ft per year).

Extremes.--Maximum discharge during year, 4,230 cfs Apr. 22 (gage height, 9.47 ft); minimum, 31 cfs Aug. 9, 10.
1937-68: Maximum discharge, 38,200 cfs May 17, 1957 (gage height, 21.85 ft); minimum daily, 0.20 cfs Sept. 3, 1956.
Maximum stage known, 26.4 ft June 9, 1923, from floodmark (discharge, about 70,000 cfs).

Remarks.--Records good except those for winter months, which are fair. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	131	132	110	157	141	100	172	818	142	102	106
2	74	147	136	110	154	141	98	159	303	189	88	93
3	71	147	140	80	150	141	174	145	210	171	77	125
4	66	148	138	80	147	134	655	138	166	124	67	2,030
5	63	148	133	90	147	120	447	134	143	99	59	330
6	65	141	129	80	140	125	257	131	120	75	51	161
7	553	134	127	70	140	125	209	150	120	69	45	116
8	806	128	127	70	140	124	187	280	110	62	39	96
9	308	126	125	85	138	124	171	320	107	58	35	82
10	185	125	125	100	142	127	158	248	121	55	38	73
11	152	125	125	120	140	128	149	216	212	52	427	70
12	139	124	125	120	140	130	142	205	243	47	855	68
13	137	122	125	100	134	127	138	203	150	45	234	66
14	135	119	125	100	136	122	137	214	117	43	135	62
15	127	119	115	120	142	120	133	199	113	41	111	59
16	121	119	107	150	142	118	125	182	188	53	220	61
17	118	119	131	180	140	115	123	167	242	84	1,640	66
18	116	119	189	210	136	111	123	150	201	210	1,720	67
19	110	119	210	240	136	122	137	140	148	156	1,090	68
20	107	119	192	250	138	119	202	131	121	69	318	66
21	104	119	183	265	130	115	232	137	103	54	174	60
22	102	119	169	272	119	113	1,790	153	92	44	126	59
23	99	119	164	223	122	113	1,730	150	82	37	100	418
24	97	119	167	192	150	113	610	150	78	39	84	474
25	98	119	193	182	173	111	382	162	81	37	75	164
26	97	119	174	170	157	110	304	165	89	46	68	112
27	94	119	160	169	156	107	260	279	112	49	65	94
28	96	119	162	163	151	106	235	226	90	239	66	83
29	96	123	173	161	140	103	207	178	78	272	74	74
30	96	129	173	159	------	102	183	154	70	194	95	70
31	106	------	130	159	------	106	------	169	------	139	116	------
TOTAL	4,618	3,783	4,604	4,580	4,137	3,722	9,805	5,643	4,837	2,967	8,394	5,473
MEAN	149	126	149	148	143	120	327	182	161	95.7	271	182
MAX	806	148	210	272	173	141	1,790	329	818	272	1,720	2,030
MIN	63	119	107	70	119	102	98	131	70	37	35	59
AC-FT	9,160	7,500	9,130	9,080	8,210	7,380	19,450	11,190	9,590	5,880	16,650	10,860

CAL YR 1967: TOTAL 77,623 MEAN 213 MAX 4,520 MIN 57 AC-FT 154,000
WTR YR 1968: TOTAL 62,563 MEAN 171 MAX 2,030 MIN 35 AC-FT 124,100

PEAK DISCHARGE (BASE, 3,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
4-22	2100	9.47	4,230	9-04	0600	8.85	3,680

7-1465. Arkansas River at Arkansas City, Kans.

Location.--Lat 37°03'23", long 97°03'32", in NE¼ sec. 35, T. 34 S., R. 3 E., near left bank on downstream side of pier of bridge on U.S. Highway 166, 0.1 mile downstream from St. Louis - San Francisco Railway Co. bridge, 0.5 mile west of Arkansas City, Cowley County, 5.4 miles upstream from Walnut River and at mile 701.4.

Drainage area.--43,713 sq mi, of which 7,607 sq mi is probably noncontributing.

Records available.--September 1902 to September 1906, September 1921 to September 1968. Published as "near Arkansas City" 1903-4. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Digital water-stage recorder. Datum of gage is 1,050.04 ft above mean sea level (levels by Corps of Engineers). Sept. 23, 1902 to July 31, 1906, staff gage at site 0.5 mile upstream at datum 9.5 ft higher. Sept. 10, 1921 to Sept. 27, 1929, chain gage and Sept. 28, 1929 to Aug. 28, 1956, graphic water-stage recorder at site 0.5 mile upstream at datum 2.97 ft higher than present datum. Aug. 29, 1956 to Oct. 20, 1966, graphic water-stage recorder at present site and datum.

Average discharge.--51 years, 1,740 cfs (1,260,000 acre-ft per year).

Extremes.--Maximum discharge during year, 25,000 cfs Aug. 18 (gage height, 17.97 ft); minimum, 200 cfs Jan. 3 (result of freezeup).
1902-6, 1921-68: Maximum discharge, 103,000 cfs June 10, 1923 (gage height, 25.46 ft, from floodmarks, site and datum then in use), from rating curve extended above 8,000 cfs on basis of field estimate (maximum gage height, 25.55 ft May 18, 1957); minimum discharge, 1 cfs Oct. 9, 1921 (result of diversion by local power canal).
Maximum stage known since at least 1877, that of May 18, 1957, from information by local residents.

Remarks.--Records good. Flow regulated by John Martin Reservoir. Diversions above station for irrigation. Records of chemical analyses, water temperatures and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,220	614	534	489	696	585	584	577	939	552	1,330	609
2	1,110	688	582	358	680	569	593	539	1,220	602	1,270	660
3	950	670	590	282	653	595	598	511	1,290	728	1,140	555
4	850	778	590	309	621	578	1,490	480	909	626	893	1,900
5	778	679	582	313	607	570	1,250	445	754	560	753	5,720
6	733	670	590	300	601	571	1,330	428	732	488	653	4,230
7	1,030	654	582	288	590	579	1,030	494	592	444	586	1,970
8	2,240	646	574	290	584	604	867	725	529	399	527	1,190
9	7,680	654	574	400	574	617	756	674	472	396	477	903
10	6,180	638	574	500	581	626	678	689	411	403	439	728
11	5,100	630	574	563	593	626	638	648	2,390	362	462	620
12	3,520	622	558	491	609	661	591	586	3,330	340	704	534
13	2,040	614	550	450	600	649	552	622	1,370	322	1,290	485
14	1,510	582	534	450	591	641	539	607	777	315	1,010	441
15	1,340	582	518	500	584	612	509	757	2,880	324	906	411
16	1,200	574	503	550	584	597	490	597	1,460	337	1,090	383
17	1,070	566	534	600	592	590	518	543	2,190	313	3,150	364
18	990	558	566	625	601	593	482	509	2,710	314	20,100	358
19	922	558	598	657	593	647	536	482	1,910	381	13,400	344
20	877	542	646	690	578	636	622	469	1,330	417	5,920	332
21	823	534	662	670	579	609	878	470	944	393	2,120	328
22	769	534	662	700	582	576	914	481	731	343	1,200	316
23	706	526	662	766	581	561	1,910	830	632	305	942	304
24	679	503	630	789	570	545	3,430	775	612	291	790	1,360
25	662	468	646	742	566	525	1,620	1,560	636	480	684	1,620
26	638	482	654	725	603	512	1,120	2,730	753	369	610	1,000
27	614	496	654	711	615	545	918	1,300	887	355	575	708
28	590	503	622	703	627	553	790	854	760	1,070	550	563
29	582	510	630	695	601	545	700	831	687	1,720	557	485
30	566	510	670	702	------	537	634	732	601	2,070	570	443
31	566	------	662	697	------	585	------	763	------	1,790	583	------
TOTAL	48,535	17,585	18,507	17,005	17,436	18,239	27,567	22,708	35,438	17,809	65,281	29,864
MEAN	1,566	586	597	549	601	588	919	733	1,181	574	2,106	995
MAX	7,680	778	670	789	696	661	3,430	2,730	3,330	2,070	20,100	5,720
MIN	566	468	503	282	566	512	482	428	411	291	439	304
AC-FT	96,270	34,880	36,710	33,730	34,580	36,180	54,680	45,040	70,290	35,320	129,500	59,230

CAL YR 1967: TOTAL 547,166 MEAN 1,499 MAX 16,800 MIN 222 AC-FT 1,085,000
WTR YR 1968: TOTAL 335,974 MEAN 918 MAX 20,100 MIN 282 AC-FT 666,400

PEAK DISCHARGE (BASE, 6,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-9	1200	13.91	8,930	8-18	1500	17.97	25,000

7-1465.7 Cole Creek near DeGraff, Kans.

Location.--Lat 37°56'50", long 96°46'50", in W½ sec.21, T. 24 S., R. 6 E., at downstream side of highway bridge, 5 miles southeast of DeGraff, Butler County, and 6 miles upstream from mouth.

Drainage area.--30 sq mi, approximately.

Records available.--March 1961 to September 1968.

Gage.--Digital water-stage recorder. Altitude of gage is 1,335 ft (from topographic map). Prior to Sept. 30, 1964 graphic water-stage recorder at present site and datum.

Average discharge.--7 years, 14.1 cfs (10,210 acre-ft per year).

Extremes.--Maximum discharge during year, 1,600 cfs July 26 (gage height, 10.33 ft); no flow for part of each day Mar. 26 to Apr.1.
1961-68: Maximum discharge, 11,100 cfs June 5, 1965 (gage height, 14.12 ft); no flow at times.
Maximum stage known since at least 1947, 17.0 ft, May 1955, from information by local resident.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.87	3.4	1.8	2.0	2.5	1.1	.21	1.6	19	1.2	5.7	4.1
2	.81	3.2	2.1	1.8	2.3	1.2	.64	1.4	9.1	1.1	4.7	2.4
3	.52	7.1	2.2	1.7	2.2	1.1	7.9	1.1	5.2	1.0	4.0	1.5
4	.40	7.3	2.1	1.6	1.9	1.1	11	1.0	3.6	.89	3.2	1.2
5	.34	5.8	2.1	1.5	1.7	1.1	3.5	.97	2.8	.77	2.6	1.0
6	.19	4.0	2.1	1.6	1.7	1.0	1.9	1.0	2.2	.64	2.1	.99
7	386	3.4	1.9	1.5	1.6	.89	1.2	1.8	1.8	.55	1.7	1.1
8	33	3.0	2.0	1.5	1.6	.95	1.4	2.5	1.6	.50	1.3	.89
9	13	2.8	1.9	1.4	1.6	.96	.91	3.6	1.5	.37	1.1	.62
10	7.3	2.7	1.9	1.3	1.6	.92	.45	2.2	1.4	.31	1.1	.41
11	5.1	2.4	1.7	1.3	1.6	.89	.26	1.8	2.0	.28	2.1	.35
12	4.2	2.2	1.6	1.5	1.6	.85	.17	1.7	1.3	.23	2.3	.32
13	2.9	2.2	1.5	1.2	1.4	.82	.83	15	1.2	.17	1.7	.15
14	2.8	2.1	1.5	.98	1.3	.81	.26	35	1.1	.11	1.6	.15
15	19	2.0	1.4	1.0	1.3	.81	.38	9.8	184	.11	1.5	.14
16	22	2.0	1.4	1.1	1.2	.74	.43	5.3	92	.11	1.2	.14
17	9.0	2.0	2.1	1.4	1.2	.89	.52	3.7	27	.10	1.2	.12
18	4.8	2.0	12	2.0	1.2	1.1	.80	3.3	12	.11	2.5	.12
19	3.5	1.9	17	2.4	1.2	1.1	1.3	2.8	7.3	.11	2.6	.12
20	2.9	1.9	6.5	2.6	1.2	1.1	3.7	2.4	5.1	1.2	1.9	.10
21	2.6	1.8	4.2	2.7	1.2	.96	6.5	2.2	3.5	1.0	1.4	.10
22	2.5	1.8	3.4	2.8	1.2	.84	13	2.4	2.7	.57	1.1	.10
23	2.1	1.8	2.8	2.9	1.2	.83	8.3	3.0	2.2	.31	.76	.70
24	2.0	1.8	2.7	2.8	1.2	.83	6.9	3.2	1.9	.30	.62	12
25	2.1	1.8	2.8	2.7	1.2	.50	3.5	179	3.5	671	.43	3.6
26	2.1	1.8	2.9	2.6	1.3	.20	2.6	25	9.3	673	.36	1.4
27	2.0	1.9	3.1	2.6	1.3	.36	2.1	12	4.7	26	.28	.69
28	2.0	1.8	2.7	2.7	1.2	.53	1.8	7.3	3.2	214	.28	.43
29	1.9	1.8	2.5	2.7	1.2	.01	1.6	5.0	2.3	31	.99	.23
30	1.7	1.8	2.3	2.6	------	.23	1.5	3.7	1.6	14	2.6	.14
31	2.5	------	2.3	2.5	------	.06	------	21	------	8.0	5.2	------
TOTAL	542.13	81.5	98.5	60.98	42.9	24.78	85.56	361.77	416.1	1,649.04	60.12	35.31
MEAN	17.5	2.72	3.18	1.97	1.48	.80	2.85	11.7	13.9	53.2	1.94	1.18
MAX	386	7.3	17	2.9	2.5	1.2	13	179	184	673	5.7	12
MIN	.19	1.8	1.4	.98	1.2	.01	.17	.97	1.1	.10	.28	.10
AC-FT	1,080	162	195	121	85	49	170	718	825	3,270	119	70

CAL YR 1967: TOTAL 3,675.31 MEAN 10.0 MAX 854 MIN 0 AC-FT 7,290
WTR YR 1968: TOTAL 3,458.69 MEAN 9.45 MAX 673 MIN .01 AC-FT 6,860

PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	1200	7.95	918	7-25	1545	10.10	1,530
5-25	1530	6.84	651	7-26	0515	10.33	1,600
6-15	2200	7.58	825	7-28	1030	6.78	637

7-1469.9 Whitewater River near Potwin, Kans.

Location.--Lat 37°53'52", long 97°02'43", in SW¼SE¼SE¼ sec. 1, T. 25 S., R. 3 E., at highway bridge, 3 miles southwest of Potwin, Butler County, and at mile 28.

Drainage area.--162 sq mi.

Records available.--October 1967 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 1,270 ft (from topographic map).

Extremes.--Maximum discharge during the year, 16,600 cfs July 25 (gage height, 26.35 ft); minimum, 1.1 cfs Oct. 6, July 23.

Remarks.--Records good. Records of chemical analyses and continuous conductivity for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	8.0	5.6	7.4	7.7	6.0	6.0	9.8	43	6.6	54	31
2	3.5	9.8	7.4	6.6	6.6	6.0	4.8	9.1	18	6.0	47	21
3	2.7	10	8.8	5.1	6.0	5.6	649	8.4	13	6.6	42	15
4	2.4	13	8.4	6.0	6.3	5.3	151	8.4	11	5.3	36	16
5	1.5	11	7.7	5.3	5.6	3.8	34	8.0	8.8	4.8	31	75
6	1.4	13	8.0	5.0	4.0	5.3	21	7.7	7.0	4.3	28	26
7	392	10	5.6	5.0	5.3	5.3	16	11	6.3	3.8	26	16
8	578	7.4	7.0	5.6	5.1	5.3	14	12	5.6	3.5	24	12
9	64	8.0	7.0	5.6	4.0	5.3	11	9.8	8.4	3.3	20	9.5
10	27	7.7	7.7	5.3	5.3	6.6	9.1	8.0	8.8	3.0	19	8.4
11	20	7.4	6.3	6.6	5.6	6.0	8.8	9.5	16	2.7	34	7.7
12	16	7.4	7.7	6.6	5.6	4.0	8.0	11	12	2.4	22	7.7
13	12	6.3	8.8	7.0	5.3	5.1	8.4	11	11	2.3	20	7.7
14	11	4.8	7.4	7.0	3.8	5.1	8.4	14	7.4	2.2	18	7.4
15	94	6.3	3.6	6.6	5.3	4.0	7.4	12	436	2.0	18	6.3
16	117	7.0	6.0	6.0	5.3	4.8	6.6	9.5	1,120	2.0	17	6.3
17	19	5.3	9.1	7.7	4.3	5.6	7.7	7.4	88	2.2	17	6.3
18	11	6.6	10	9.5	5.3	5.6	7.4	7.0	43	2.2	31	6.3
19	7.7	6.6	11	7.7	5.3	6.0	11	6.6	42	2.4	27	6.0
20	5.1	6.6	16	9.8	5.6	6.0	11	6.3	53	2.3	20	5.3
21	5.3	5.3	9.5	9.8	6.0	5.6	11	5.6	25	2.3	16	5.3
22	5.1	6.3	9.8	8.0	4.3	5.3	437	6.0	18	2.0	14	5.3
23	4.8	6.6	8.4	9.1	5.6	5.3	138	9.5	14	1.3	12	17
24	5.1	7.0	7.7	8.8	4.8	5.3	43	16	12	1.6	12	12
25	4.8	6.6	6.6	7.7	5.3	5.1	25	20	15	4,950	11	8.8
26	4.8	7.4	7.4	8.8	6.0	4.0	18	143	20	5,560	10	7.4
27	5.6	6.6	7.4	8.3	5.6	3.8	16	35	15	408	9.8	6.6
28	3.5	4.8	7.4	8.8	4.6	4.0	14	19	11	1,030	10	5.6
29	4.6	5.3	6.6	8.4	5.6	6.0	12	14	9.8	1,410	18	5.3
30	5.6	6.6	7.7	6.3	------	63	11	11	8.0	114	166	5.3
31	6.3	------	7.0	8.0	------	10	------	35	------	67	47	------
TOTAL	1,445.6	224.7	244.6	223.9	155.1	224.1	1,725.6	500.6	2,106.1	13,616.1	876.8	375.5
MEAN	46.6	7.49	7.89	7.22	5.35	7.23	57.5	16.1	70.2	439	28.3	12.5
MAX	578	13	16	9.8	7.7	63	649	143	1,120	5,560	166	75
MIN	1.4	4.8	3.6	5.0	3.8	3.8	4.8	5.6	5.6	1.3	9.8	5.3
AC-FT	2,870	446	485	444	308	444	3,420	993	4,180	27,010	1,740	745

CAL YR 1967:	TOTAL		MEAN		MAX		MIN		AC-FT	
WTR YR 1968:	TOTAL	21,718.7	MEAN	59.3	MAX	5,560	MIN	1.3	AC-FT	43,080

PEAK DISCHARGE (BASE, 1,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7-25	1900	26.35	16,600	7-29	0400	20.83	2,280

7-1470.5 West Branch Whitewater River near Furley, Kans.

Location.--Lat 37°52'08", long 97°07'31", in NE¼NE¼NW¼ sec. 20, T. 25 S., R. 3 E., at downstream side of highway bridge, 5 miles east of Furley, Butler County, and at mile 13.

Drainage area.--88 sq mi.

Records available.--October 1967 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 1,288.33 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 2,410 cfs June 16 (gage height, 16.68 ft); minimum, 2.5 cfs Sept. 30.

Remarks.--Records good. Records of chemical analyses and continuous conductivity for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	12	6.8	7.5	6.8	4.6	3.5	11	62	6.1	18	12
2	5.8	21	7.7	7.9	6.4	4.6	3.3	10	17	6.2	14	9.0
3	5.0	19	7.4	7.7	6.2	4.5	751	9.4	10	6.0	11	8.1
4	4.5	25	7.9	7.7	5.8	4.5	133	8.5	8.5	6.0	9.7	49
5	4.1	20	8.3	7.5	5.5	4.4	33	8.1	7.2	6.0	8.3	80
6	4.2	15	7.9	7.0	5.4	4.2	21	7.9	6.4	5.5	7.5	20
7	615	12	7.0	6.0	5.0	4.2	17	11	6.1	5.0	7.0	9.7
8	706	10	6.8	5.5	4.9	4.4	13	13	6.0	5.0	6.6	7.0
9	66	9.7	6.6	6.0	4.9	4.4	11	10	5.8	4.6	6.2	5.6
10	36	9.4	6.6	6.5	5.0	4.4	10	8.3	7.5	4.5	6.2	5.2
11	25	10	6.2	7.0	5.0	4.4	8.8	8.1	14	4.2	65	4.6
12	18	9.0	6.4	7.0	4.9	4.2	7.9	11	7.0	4.1	10	4.2
13	16	8.5	6.4	6.5	4.5	4.1	7.5	16	5.8	3.7	7.4	4.0
14	15	7.9	6.2	6.0	4.5	3.9	7.2	12	5.0	3.7	6.6	3.7
15	14	7.5	6.1	6.5	4.9	3.9	6.8	9.4	361	3.6	8.1	3.5
16	12	7.7	5.8	7.0	4.9	3.9	7.0	7.9	1,820	3.6	7.0	3.4
17	12	7.7	6.1	7.2	4.9	3.9	7.0	6.8	219	5.8	7.0	3.4
18	11	7.7	7.9	7.0	4.8	4.1	6.4	6.1	56	6.0	86	3.4
19	10	7.5	13	7.2	4.8	4.4	8.8	5.6	30	3.7	30	3.3
20	9.4	7.0	13	8.3	4.8	4.0	42	5.5	23	3.5	9.9	3.3
21	9.0	6.8	11	8.8	4.5	3.7	37	5.5	18	3.4	7.2	3.0
22	8.5	6.6	8.0	9.2	4.5	3.6	728	5.6	14	3.3	6.1	2.9
23	7.9	7.0	7.5	9.7	4.8	3.6	122	9.9	12	3.2	5.5	5.2
24	9.2	7.2	7.7	9.9	4.9	3.5	40	10	10	3.2	5.5	3.0
25	9.2	7.0	7.4	9.7	4.9	3.4	26	43	12	581	7.9	3.5
26	9.4	7.0	7.0	9.0	4.8	3.6	21	82	14	1,410	7.7	3.3
27	8.8	6.6	8.0	9.0	4.8	3.6	18	23	10	68	6.1	3.0
28	8.1	6.4	7.5	8.8	4.8	3.6	18	13	8.8	189	6.0	2.8
29	8.5	6.4	8.3	8.1	4.5	3.7	13	10	7.4	218	6.2	2.9
30	8.1	6.4	7.5	7.7	------	4.1	12	8.3	6.4	43	55	2.6
31	8.5	------	6.5	7.4	------	4.5	------	44	------	25	22	------
TOTAL	1,691.0	301.0	236.5	236.3	146.4	125.9	2,140.2	439.9	2,789.9	2,643.9	466.7	274.6
MEAN	54.5	10.0	7.63	7.62	5.05	4.06	71.3	14.2	93.0	85.3	15.1	9.15
MAX	706	25	13	9.9	6.8	4.6	751	82	1,820	1,410	86	80
MIN	4.1	6.4	5.8	5.5	4.5	3.4	3.3	5.5	5.0	3.2	5.5	2.6
AC-FT	3,350	597	469	469	290	250	4,250	873	5,530	5,240	926	545

CAL YR 1967:	TOTAL		MEAN		MAX		MIN		AC-FT	
WTR YR 1968:	TOTAL	11,492.3	MEAN	31.4	MAX	1,820	MIN	2.6	AC-FT	22,790

PEAK DISCHARGE (BASE, 1,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-8	0200	14.82	1,650	6-16	1000	16.68	2,410
4-03	1400	13.33	1,200	7-26	0500	16.63	2,380
4-22	1600	14.06	1,420				

7-1470.6 West Branch Whitewater River near Benton, Kans.

Location.--Lat 37°49'01", long 97°04'50", in NW¼NW¼SW¼ sec. 2, T. 26 S., R. 3 E., at downstream side of highway bridge, 3 miles northeast of Benton, Butler County, and at mile 6.

Drainage area.--177 sq mi.

Records available.--October 1967 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 1,259.76 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 2,770 cfs June 16 (gage height, 17.46 ft); minimum, 2.9 cfs Sept. 15-16.

Remarks.--Records good. Records of chemical analyses and continuous conductivity for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	18	12	11	14	8.4	8.8	18	217	12	25	16
2	9.3	30	13	11	13	8.4	7.6	15	56	12	18	9.2
3	7.6	31	13	10	12	8.4	1,550	14	32	12	14	6.4
4	6.7	36	14	9.3	12	8.4	557	12	22	12	11	138
5	6.4	32	15	8.8	12	8.4	100	11	17	11	8.8	142
6	7.0	26	13	8.8	11	8.4	59	11	15	10	7.3	40
7	654	20	13	7.6	11	8.4	40	18	13	10	6.2	17
8	1,200	17	12	7.3	11	8.8	29	24	13	9.6	5.6	9.2
9	158	16	12	7.6	11	8.8	24	18	12	8.8	4.4	5.6
10	82	15	12	8.4	9.3	9.3	18	13	15	8.3	4.4	4.6
11	55	15	12	9.8	9.3	8.8	17	11	108	7.9	176	4.2
12	37	15	12	10	9.3	8.4	14	13	36	7.6	64	3.8
13	29	14	12	9.3	7.9	7.9	13	27	19	7.6	18	3.6
14	25	13	12	8.8	9.3	7.6	13	32	14	7.3	9.6	3.4
15	24	13	10	9.3	9.8	7.3	12	18	427	7.3	34	3.0
16	20	13	11	11	9.3	7.3	12	13	2,360	7.0	26	3.0
17	19	13	13	12	8.4	7.9	20	11	756	7.3	11	3.2
18	18	13	13	13	8.4	8.4	12	8.8	134	103	238	3.4
19	16	13	17	13	8.4	9.3	36	7.6	70	16	124	3.4
20	15	12	20	14	8.8	8.8	83	7.0	50	9.6	35	3.6
21	13	13	18	15	8.8	7.9	78	7.0	36	7.0	13	3.4
22	12	12	14	15	8.8	7.3	766	7.6	29	6.7	7.0	69
23	11	12	13	15	9.3	6.7	427	8.4	24	6.2	5.0	979
24	12	12	14	16	9.3	6.7	96	15	21	6.2	4.0	89
25	14	12	13	16	9.3	6.7	54	66	23	200	4.6	21
26	16	13	11	15	9.8	7.3	40	124	29	1,620	7.9	11
27	15	12	15	16	9.8	7.9	31	47	22	161	5.0	7.9
28	14	12	11	17	9.8	7.9	22	24	17	107	4.6	6.4
29	13	12	15	16	8.8	8.4	22	16	15	324	6.2	5.0
30	13	12	12	15	------	10	18	12	13	71	40	4.8
31	13	------	10	15	------	9.8	------	172	------	37	32	------
TOTAL	2,546.0	497	407	371.0	288.9	254.0	4,179.4	801.4	4,615	2,832.4	969.6	1,619.1
MEAN	82.1	16.6	13.1	12.0	9.96	8.19	139	25.9	154	91.4	31.3	54.0
MAX	1,200	36	20	17	14	10	1,550	172	2,360	1,620	238	979
MIN	6.4	12	10	7.3	7.9	6.7	7.6	7.0	12	6.2	4.0	3.0
AC-FT	5,050	986	807	736	573	504	8,290	1,590	9,150	5,620	1,920	3,210

CAL YR 1967: TOTAL MEAN MAX MIN AC-FT
WTR YR 1968: TOTAL 19,380.8 MEAN 53.0 MAX 2,360 MIN 3.0 AC-FT 38,440

PEAK DISCHARGE (BASE, 1,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-8	0800	14.00	1,690	6-16	1800	17.46	2,770
4-03	1800	16.70	2,490	7-26	1600	15.19	2,030
4-22	2200	13.28	1,500				

7-1470.7 Whitewater River at Towanda, Kans.

Location.--Lat 37°47'45", long 97°00'45", on south line of sec.8, T. 26 S., R. 4 E., at downstream side of bridge on State Highway 254, 0.5 mile west of Towanda, Butler County, 2.4 miles downstream from West Branch, and at mile 17.5.

Drainage area.--426 sq mi.

Records available.--October 1959 to September 1961 (annual peaks only published as "at Augusta"). October 1961 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,231.47 ft above mean sea level (levels by State Highway). Prior to Oct. 1, 1961, crest stage gage at same site and datum 5.22 ft higher. Oct. 1, 1961 to Sept. 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--7 years, 186 cfs (134,700 acre-ft per year).

Extremes.--Maximum discharge during year, 12,100 cfs July 26 (gage height, 24.50 ft); minimum, 8.4 cfs July 24.
1959-68: Maximum discharge, 40,200 cfs June 5, 1965 (gage height, 28.02 ft); minimum, 0.20 cfs July 14, 1966.
Maximum stage known since at least 1923, 28.6 ft April 1944, from floodmark.

Remarks.--Records good. Records of chemical analyses and continuous conductivity for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	25	28	27	30	18	22	41	380	28	106	71
2	50	28	28	27	28	19	17	38	111	27	87	47
3	44	33	28	24	25	19	1,900	35	69	25	79	33
4	41	42	32	23	23	18	1,370	34	50	24	70	99
5	40	40	32	23	23	18	173	32	35	23	59	252
6	38	46	31	21	22	17	104	31	21	22	50	126
7	978	43	29	21	20	19	77	38	19	19	44	80
8	2,500	37	26	19	20	20	73	51	19	18	37	51
9	303	33	28	19	21	19	59	46	19	18	35	35
10	132	32	28	19	21	19	46	44	21	16	30	29
11	95	32	28	21	22	20	41	38	76	15	303	26
12	77	30	26	22	22	18	37	37	34	14	142	25
13	58	28	24	22	21	15	36	41	30	13	75	24
14	51	27	24	20	19	18	35	69	23	12	55	23
15	84	29	22	20	19	18	30	60	1,300	12	46	22
16	242	31	21	20	20	17	30	42	4,200	12	62	22
17	54	28	26	22	20	18	43	32	1,920	12	53	20
18	38	25	30	24	19	18	34	28	244	76	258	20
19	37	24	36	27	19	17	51	26	131	40	220	21
20	30	25	40	28	19	18	90	23	137	24	77	21
21	30	25	38	33	20	17	107	22	88	14	52	20
22	32	29	33	35	20	16	878	23	68	11	36	33
23	26	33	28	36	19	16	1,090	24	52	9.7	27	1,490
24	24	28	29	36	20	16	187	37	38	8.8	23	256
25	21	28	29	36	20	23	103	199	42	1,020	22	57
26	25	28	27	33	20	21	87	333	53	9,300	22	36
27	32	27	31	34	20	19	74	131	51	4,140	23	21
28	31	25	30	32	19	17	65	77	43	838	23	20
29	24	24	29	32	18	17	53	55	37	3,160	27	16
30	22	25	29	30	------	137	47	39	32	482	169	23
31	23	------	28	27	------	38	------	225	------	151	118	------
TOTAL	5,239	910	898	813	609	700	6,959	1,951	9,343	19,584.5	2,430	3,019
MEAN	169	30.3	29.0	26.2	21.0	22.6	232	62.9	311	632	78.4	101
MAX	2,500	46	40	36	30	137	1,900	333	4,200	9,300	303	1,490
MIN	21	24	21	19	18	15	17	22	19	8.8	22	16
AC-FT	10,390	1,800	1,780	1,610	1,210	1,390	13,800	3,870	18,530	38,850	4,820	5,990

CAL YR 1967: TOTAL 67,834.67 MEAN 185 MAX 6,590 MIN .97 AC-FT 134,500
WTR YR 1968: TOTAL 52,455.5 MEAN 143 MAX 9,300 MIN 8.8 AC-FT 104,000

PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-8	1100	14.22	3,000	7-26	1100	24.50	12,100
4-03	2000	15.31	3,430	7-29	1300	16.10	3,750
4-23	0100	12.71	2,450	9-23	0600	11.46	2,010
6-16	2000	18.36	4,710				

7-1476. Timber Creek near Wilmot, Kans.

Location.--Lat 37°20'55", long 96°52'45", on east line of sec.16, T. 31 S., R. 5 E., at downstream side of highway bridge 1.9 miles south of Wilmot, Cowley County, 10 miles northeast of Winfield and at mile 5.8.

Drainage area.--63 sq mi.

Records available.--March 1962 to September 1968 (discontinued).

Gage.--Digital water-stage recorder. Datum of gage is 1,213.83 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--6 years, 15.8 cfs (11,440 acre-ft per year).

Extremes.--Maximum discharge during year, 3,000 cfs Sept. 4 (gage height, 10.18 ft); minimum, 2.5 cfs Aug. 9, 10.
1962-68: Maximum discharge, 6,170 cfs Nov. 16, 1964 (gage height, 12.97 ft); no flow at times in 1962-64, 66, 67.
Maximum stage known since at least 1956, 15.9 ft July 1961, from floodmark.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	12	6.8	5.4	9.4	5.2	5.8	6.3	50	89	4.0	5.7
2	9.4	14	6.8	5.6	8.1	5.2	5.6	5.9	39	62	3.9	5.0
3	8.7	12	6.8	5.6	6.5	5.2	5.6	5.6	31	17	3.6	6.6
4	8.7	12	8.7	5.2	6.3	5.0	16	5.3	26	13	3.4	1,310
5	7.5	12	8.7	5.2	6.1	4.3	8.1	5.1	23	11	3.3	120
6	6.8	11	7.8	5.2	5.8	4.3	6.4	5.0	20	9.8	3.1	72
7	428	9.7	7.1	5.0	5.6	4.3	6.0	6.3	19	8.8	2.9	52
8	129	8.7	6.5	4.7	5.4	4.5	5.8	6.7	17	8.1	2.8	40
9	48	8.4	6.5	4.7	5.4	4.3	5.9	6.3	15	23	2.6	32
10	31	8.4	6.5	4.7	5.4	4.3	5.8	5.7	29	11	2.6	27
11	26	8.4	7.1	5.0	5.6	4.3	5.7	5.7	209	8.0	28	24
12	23	8.1	7.5	5.2	5.4	4.1	5.7	5.9	45	7.2	8.2	22
13	20	7.1	6.8	5.0	5.4	3.8	5.7	6.7	30	6.7	4.7	20
14	16	7.1	6.1	4.7	5.2	3.8	5.9	9.8	52	6.4	4.2	18
15	70	7.1	5.8	5.0	5.2	3.8	5.8	10	216	7.1	29	17
16	69	6.8	5.6	5.0	5.2	3.8	5.7	7.0	123	7.4	7.0	17
17	27	6.8	6.3	4.7	5.2	3.8	5.9	6.1	66	6.8	5.4	16
18	19	7.1	6.8	5.4	5.2	4.0	5.9	5.5	44	13	950	15
19	16	7.5	6.5	5.4	5.0	4.1	6.2	5.3	31	6.2	102	15
20	14	7.5	6.5	5.4	5.0	4.3	6.4	5.2	24	5.4	45	13
21	13	7.1	6.5	5.8	5.0	4.1	6.4	5.2	20	5.2	27	12
22	12	7.1	6.3	6.3	5.0	4.0	17	50	16	5.0	19	12
23	11	6.8	5.8	6.1	5.0	3.8	56	233	14	4.9	13	12
24	11	6.8	5.8	5.8	5.0	3.6	22	65	13	5.0	9.6	32
25	10	6.8	5.8	6.1	5.0	3.6	15	889	19	6.6	7.8	12
26	10	7.5	5.8	6.5	5.0	3.6	11	193	17	5.3	6.5	9.3
27	9.4	8.4	5.8	6.5	5.0	3.6	9.2	140	13	4.8	5.7	8.4
28	9.1	7.1	5.8	6.3	5.0	3.4	8.2	115	11	20	5.7	7.5
29	9.1	6.8	5.8	6.5	5.2	3.4	7.3	93	9.3	14	6.1	7.2
30	8.7	6.8	5.8	6.8	------	3.4	6.6	77	8.7	5.3	6.7	6.8
31	9.4	------	5.8	8.4	------	5.0	------	62	------	4.2	6.8	------
TOTAL	1,100.8	252.9	202.2	173.2	161.6	127.9	288.6	2,047.6	1,250.0	407.2	1,329.6	1,966.5
MEAN	35.5	8.43	6.52	5.59	5.57	4.13	9.62	66.1	41.7	13.1	42.9	65.6
MAX	428	14	8.7	8.4	9.4	5.2	56	889	216	89	950	1,310
MIN	6.8	6.8	5.6	4.7	5.0	3.4	5.6	5.0	8.7	4.2	2.6	5.0
AC-FT	2,180	502	401	344	321	254	572	4,060	2,480	808	2,640	3,900

CAL YR 1967: TOTAL 4,712.03 MEAN 12.9 MAX 1,300 MIN 0 AC-FT 9,350
WTR YR 1968: TOTAL 9,308.1 MEAN 25.4 MAX 1,310 MIN 2.6 AC-FT 18,460

PEAK DISCHARGE (BASE, 300 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	1630	5.88	688	6-15	0230	5.36	528
5-22	2300	5.77	651	7-01	1445	5.01	428
5-25	1030	7.98	1,610	8-18	1230	8.71	2,050
6-11	0515	5.05	438	9-04	0830	10.18	3,000

7-1478. Walnut River at Winfield, Kans.

Location.--Lat 37°14', long 97°00', in NE¼ sec.33, T. 32 S., R. 4 E., at downstream side of bridge on U.S. Highway 77, 1 mile south of Winfield, Cowley County, 1 mile upstream from Black Crook Creek, and at mile 24.8.

Drainage area.--1,872 sq mi.

Records available.--October 1921 to September 1968. October to November 1921 monthly discharge only, published in WSP 1311.

Gage.--Digital water-stage recorder. Datum of gage is 1,082.86 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 1, 1934, chain gage on upstream side of former bridge just upstream from present gage at same datum. Oct. 1, 1934 to Sept. 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--47 years, 750 cfs (543,000 acre-ft per year).

Extremes.--Maximum discharge during year, 17,000 cfs Sept. 4 (gage height, 20.23 ft); minimum 75 cfs July 24.
1921-68: Maximum discharge, 105,000 cfs Apr. 23, 1944 (gage height, 38.30 ft); no flow at times in 1929, 1936, 1954-56. Maximum floods known since at least 1877, that of Apr. 23, 1944; Nov. 18, 1928, discharge, 94,400 cfs (gage height, 41.0 ft, from graph based on gage readings at former site).

Remarks.--Records good. Some regulation at low flow by City Water Works Dam above station. Records of chemical analyses, water temperatures and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	277	378	175	152	161	105	323	226	1,250	530	631	305
2	233	940	186	163	158	105	190	207	1,590	1,560	449	228
3	199	602	181	152	151	101	158	190	745	380	355	241
4	176	563	181	152	149	101	1,280	176	489	275	299	12,600
5	161	619	187	155	145	100	1,930	161	394	221	251	2,680
6	148	555	189	155	141	105	466	158	332	192	212	839
7	1,750	455	180	128	137	107	274	178	293	174	185	589
8	4,520	403	171	132	130	109	212	240	263	160	165	394
9	5,850	360	166	138	125	113	173	305	239	169	148	303
10	2,040	328	162	148	124	124	160	231	270	241	136	248
11	1,000	308	165	148	123	129	145	204	4,710	185	432	212
12	712	290	165	148	123	126	129	195	1,900	153	340	187
13	557	272	160	143	121	124	122	199	750	135	462	169
14	453	257	156	141	118	128	120	200	795	135	292	157
15	401	250	153	144	118	131	114	349	3,930	150	206	148
16	1,400	241	153	142	118	128	131	427	6,580	183	214	145
17	1,700	226	165	143	114	124	130	267	9,720	148	288	142
18	896	223	166	147	113	128	104	199	7,000	326	8,480	137
19	598	214	173	148	113	139	126	165	1,940	168	3,360	131
20	453	207	215	153	113	145	149	145	1,340	145	1,140	127
21	381	201	241	156	115	142	218	139	878	131	579	121
22	332	198	244	158	115	134	307	136	649	111	393	116
23	295	194	211	160	114	130	1,890	1,640	495	92	302	120
24	275	190	194	160	122	132	2,420	574	415	79	241	1,170
25	257	191	184	160	122	130	919	5,290	413	1,500	200	895
26	242	189	178	158	115	130	574	6,240	428	2,990	175	307
27	227	185	175	158	116	133	409	3,190	448	8,620	159	220
28	220	181	175	157	114	136	328	1,660	395	9,780	150	168
29	216	176	175	157	108	138	280	1,030	320	3,070	155	133
30	212	175	175	160	------	238	252	806	273	4,460	158	116
31	213	------	169	158	------	593	------	601	------	1,630	180	------
TOTAL	26,394	9,571	5,570	4,674	3,636	4,408	14,033	25,728	49,244	38,093	20,737	23,348
MEAN	851	319	180	151	125	142	468	830	1,641	1,229	669	778
MAX	5,850	940	244	163	161	593	2,420	6,240	9,720	9,780	8,480	12,600
MIN	148	175	153	128	108	100	104	136	239	79	136	116
AC-FT	52,350	18,980	11,050	9,270	7,210	8,740	27,830	51,030	97,670	75,560	41,130	46,310

CAL YR 1967: TOTAL 216,780.0 MEAN 594 MAX 9,950 MIN 5.7 AC-FT 430,000
WTR YR 1968: TOTAL 225,436 MEAN 616 MAX 12,600 MIN 79 AC-FT 447,100

PEAK DISCHARGE (BASE, 9,600 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
6-17	2100	14.39	9,970	8-18	1900	16.54	12,500
7-28	0900	15.06	10,800	9-04	1600	20.23	17,000

7-1490. Medicine Lodge River near Kiowa, Kans.

Location.-- Lat 37° 03', long 98°28', in SW¼ sec.36, T. 34 S., R. 11 W., at downstream side of bridge on State Highway 14, 200 ft downstream from the Atchison, Topeka and Santa Fe Railway Co. bridge, 1½ miles northeast of Kiowa, Barber County, and at mile 22.2.

Drainage area.--903 sq mi.

Records available.--May 1895 to October 1896, October 1937 to September 1950, October 1954 to September 1955, June 1959 to September 1968. Published as Medicine River near Kiowa 1895-96. All figures of discharge above 2,000 cfs for June and July 1896, published in Eighteenth Annual Report of the Geological Survey (Part 4), have been found to be unreliable and should not be used.

Gage.--Digital water-stage recorder. Datum of gage is 1,286.99 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). May 1895 to October 1896, staff gage at site 2 miles upstream at different datum. Feb. 11 to Mar. 2, 1938, chain gage and Mar. 3, 1938 to Sept. 30, 1944, water-stage recorder, at present site at datum 3.00 ft higher. Oct. 1, 1944 to Sept. 30, 1950 and Oct. 1, 1954 to Sept. 30, 1955, water-stage recorder at present site and datum. June 1959 to Sept. 30, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--23 years (1937-50, 1954-55, 1959-68), 135 cfs (97,740 acre-ft per year).

Extremes.--Maximum discharge during year, 1,650 cfs Aug. 11 (gage height, 7.19 ft); minimum, 0.10 cfs Aug. 9.
1895-96, 1937-50, 1954-55, 1959-68: Maximum discharge, 16,000 cfs Oct. 22, 1941 (gage height, 11.75 ft, present datum); no flow at times in most years.
Floods of May 8, 1922, and June 1957 reached stages of about 16 and 15.5 ft, respectively, present site and datum, from the Atchison, Topeka and Santa Fe Railway Co. records and information by local resident.

Remarks.--Records good except those for winter months, which are fair.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	43	50	28	58	65	45	58	78	22	11	290
2	8.5	43	51	28	55	66	53	58	89	24	7.4	147
3	7.6	43	48	23	56	61	215	54	82	24	3.7	110
4	6.6	43	48	23	55	62	280	52	73	21	1.3	88
5	5.8	43	48	27	56	63	104	49	63	40	.56	77
6	6.6	41	48	23	55	67	79	51	63	44	.41	67
7	102	39	46	19	53	67	74	953	59	55	.33	57
8	116	40	47	22	54	67	70	471	54	51	.26	51
9	60	41	47	26	54	59	65	204	52	35	.26	43
10	47	41	47	30	53	58	63	138	127	30	51	33
11	35	41	47	35	52	56	59	123	162	26	701	27
12	29	41	48	35	54	55	58	116	88	20	482	31
13	26	41	47	30	51	58	63	112	62	17	146	32
14	23	42	41	30	55	59	63	108	48	16	83	27
15	22	43	38	35	61	60	61	99	41	18	51	20
16	20	44	51	40	60	58	59	82	117	27	45	21
17	19	48	64	50	55	57	58	77	143	18	133	21
18	19	49	65	60	55	58	56	76	82	67	946	21
19	19	50	58	70	53	63	61	70	59	25	326	20
20	21	53	56	79	53	57	63	67	48	14	119	17
21	21	53	50	84	45	59	63	81	37	9.9	76	15
22	23	52	35	79	45	61	192	102	29	6.0	52	15
23	22	53	35	69	55	60	199	111	24	3.3	32	14
24	23	50	40	66	70	61	98	110	20	2.3	25	15
25	22	47	45	67	75	61	79	105	36	1.4	20	15
26	24	46	40	65	70	58	70	249	93	.96	15	14
27	25	46	35	63	66	56	67	168	84	4.6	13	13
28	26	45	33	60	74	54	63	126	49	12	22	12
29	29	47	35	58	60	53	58	103	34	8.0	50	11
30	30	50	30	57	------	52	58	88	25	8.3	80	10
31	37	------	25	58	------	50	------	79	------	9.7	543	------
TOTAL	884.6	1,358	1,398	1,439	1,659	1,841	2,596	4,340	2,021	660.46	4,036.22	1,334
MEAN	28.5	45.3	45.1	46.4	57.2	59.4	86.5	140	67.4	21.3	130	44.5
MAX	116	53	65	84	75	67	280	953	162	67	946	290
MIN	5.8	39	25	19	45	50	45	49	20	.96	.26	10
AC-FT	1,750	2,690	2,770	2,850	3,290	3,650	5,150	8,610	4,010	1,310	8,010	2,650

CAL YR 1967: TOTAL 20,524.79 MEAN 56.2 MAX 859 MIN .09 AC-FT 40,710
WTR YR 1968: TOTAL 23,567.28 MEAN 64.4 MAX 953 MIN .26 AC-FT 46,750

PEAK DISCHARGE (BASE, 3,700 CFS).--NO PEAK ABOVE BASE.

7-1569. Cimarron River near Forgan, Oklahoma

Location.--Lat 37°00'45", long 100°29'30", in SE¼SE¼ sec. 8, T. 35 S., R. 29 W., near center of span on downstream side of pier of bridge on Kansas State Highway 23, 0.8 mile north of Oklahoma-Kansas State line, 7.8 miles north of Forgan, and at mile 375.7.

Drainage area.--8,536 sq mi, of which 4,316 sq mi is probably noncontributing.

Records available.--October 1965 to September 1968.

Gage.--Digital water-stage recorder. Altitude of gage is 2,325 ft (from topographic map). Prior to Sept. 18, 1967, graphic water-stage recorder at same site and datum.

Extremes.--Maximum discharge during year, 968 cfs Aug. 12 (gage height, 4.60 ft); maximum gage height, 4.63 ft Jan. 3, 4 (backwater from ice); minimum daily discharge, 33 cfs Aug. 8, 9.
1965-68: Maximum discharge, 21,200 cfs Oct. 20, 1965 (gage height, 8.10 ft); minimum daily, that of Aug. 8, 9, 1968.

Remarks.--Records good. Extensive diversion for irrigation above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	76	81	66	88	102	70	78	166	124	96	61
2	52	78	81	60	73	79	70	78	97	86	52	52
3	54	88	70	50	77	82	123	77	69	70	37	51
4	46	101	76	56	52	88	77	62	65	58	37	54
5	47	85	83	62	42	79	69	54	62	50	36	57
6	54	75	97	58	68	79	68	138	58	54	35	53
7	56	72	86	52	79	62	82	96	53	60	35	56
8	54	65	94	45	96	77	68	67	55	58	33	59
9	51	60	109	60	80	92	64	72	93	41	33	61
10	52	56	129	68	92	93	64	125	114	38	39	59
11	63	48	100	78	91	126	68	164	110	35	225	60
12	68	52	84	74	86	81	66	124	90	36	585	57
13	80	51	80	72	62	68	66	111	80	69	148	54
14	87	46	86	68	52	66	72	104	74	47	112	51
15	82	54	110	68	80	55	70	87	68	40	100	54
16	81	52	138	78	85	55	71	80	78	49	85	60
17	60	61	120	110	61	51	79	98	72	40	105	55
18	82	50	100	81	45	50	83	82	65	42	85	56
19	104	53	71	57	87	80	79	72	59	43	74	56
20	109	57	96	55	75	76	79	66	52	42	62	57
21	123	67	132	59	68	64	71	86	51	40	60	49
22	97	68	105	68	60	62	93	80	48	38	56	48
23	90	58	92	57	72	58	85	63	37	36	54	55
24	85	70	88	97	74	65	75	65	34	36	50	58
25	81	71	108	89	75	73	81	80	61	47	50	55
26	83	71	79	94	74	60	72	60	90	55	48	57
27	73	93	70	76	72	62	77	69	86	77	46	55
28	97	94	75	95	85	53	76	58	432	272	44	50
29	97	99	72	85	75	55	80	52	345	306	46	59
30	89	97	72	72	------	58	79	51	178	92	72	62
31	78	------	70	82	------	88	------	66	------	195	69	------
TOTAL	2,327	2,068	2,854	2,192	2,126	2,239	2,277	2,565	2,942	2,276	2,609	1,671
MEAN	75.1	68.9	92.1	70.7	73.3	72.2	75.9	82.7	98.1	73.4	84.2	55.7
MAX	123	101	138	110	96	126	123	164	432	306	585	62
MIN	46	46	70	45	42	50	64	51	34	35	33	48
AC-FT	4,620	4,100	5,660	4,350	4,220	4,440	4,520	5,090	5,840	4,510	5,170	3,310

CAL YR 1967: TOTAL 35,516 MEAN 97.3 MAX 1,190 MIN 42 AC-FT 70,440
WTR YR 1968: TOTAL 28,146 MEAN 76.9 MAX 585 MIN 33 AC-FT 55,830

PEAK DISCHARGE (BASE, 3,000 CFS).--NO PEAK ABOVE BASE.

7-1575. Crooked Creek near Nye, Kans.

Location.--Lat 37°02', long 100°12', in southeast corner sec. 1, T. 35 S., R. 27 W., on left bank at upstream side of county road bridge, Meade County, 6.5 miles east of Nye and at mile 14.0.

Drainage area.--1,157 sq mi, of which 344 sq mi is probably noncontributing.

Records available.--August 1942 to September 1967. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 2,163.79 ft above mean sea level, unadjusted. Prior to Sept. 12, 1942, staff gage at same site and datum.

Average discharge.--26 years, 44.8 cfs (32,430 acre-ft per year).

Extremes.--Maximum discharge during year, 255 cfs July 9 (gage height, 3.37 ft); no flow at times.
1942-68: Maximum discharge, 13,600 cfs May 20, 1955 (gage height, 8.01 ft, right-bank gage), from rating curve extended above 2,400 cfs on basis of contracted-opening measurement of peak flow at site 10 miles upstream and a mean of slope-area measurement at gage site and discharge measurement at site 10 miles upstream at gage height 7.59 ft; maximum stage, 9.00 ft Aug. 31, 1963 at left-bank gage (8.2 ft, floodmark, at right-bank gage); no flow at times in most years.
Maximum stage known, that of Aug. 31, 1963.

Remarks.--Records good. Extensive diversion for irrigation above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	12	14	12	14	16	16	9.7	20	4.7	0	5.9
2	7.4	11	13	10	15	14	18	9.7	16	5.9	0	3.8
3	6.9	12	14	9.0	15	14	17	9.1	15	5.0	0	2.5
4	6.9	13	14	10	15	14	16	9.1	18	5.0	0	5.5
5	6.9	14	14	11	16	14	14	9.7	16	6.4	0	7.4
6	9.7	14	14	9.2	14	15	12	49	14	7.4	0	9.1
7	12	14	14	8.0	15	14	12	22	12	6.9	0	9.1
8	9.1	14	14	7.0	14	14	12	15	23	5.0	0	8.5
9	7.9	14	14	9.0	14	14	12	16	73	3.5	0	7.9
10	6.9	14	16	9.5	13	14	12	20	23	2.8	0	7.4
11	7.4	14	16	10	14	16	12	24	13	1.5	0	5.9
12	6.4	14	15	11	14	18	12	23	14	.86	0	4.6
13	5.9	14	18	12	12	16	12	22	12	.32	0	3.5
14	5.9	13	12	13	14	15	9.7	22	11	.15	0	2.2
15	5.5	12	8.0	18	17	14	11	19	10	0	0	2.2
16	5.9	12	9.0	25	14	14	11	19	43	0	0	1.3
17	6.4	12	12	35	14	14	10	18	29	0	.19	1.1
18	6.4	11	15	26	15	14	10	17	25	.23	3.9	1.1
19	6.9	12	19	21	15	15	13	17	19	1.5	0	1.1
20	6.9	12	18	18	14	15	11	18	14	0	0	.90
21	6.9	12	15	17	13	15	11	23	12	0	0	.90
22	6.4	11	14	25	10	14	10	21	11	0	0	.90
23	6.4	13	12	22	14	14	9.7	18	9.7	0	0	4.4
24	6.4	14	13	20	18	14	11	18	8.5	0	0	6.4
25	7.4	12	15	18	16	14	10	19	7.9	0	0	5.0
26	7.9	12	16	18	13	14	10	18	7.9	0	0	4.6
27	8.5	12	17	18	14	12	12	24	7.4	0	0	4.6
28	9.1	12	15	16	13	14	12	24	6.4	.77	14	3.1
29	9.1	14	16	16	14	13	11	21	3.8	3.5	8.5	2.8
30	9.1	14	16	17	------	13	10	18	2.5	1.1	11	2.8
31	10	------	14	16	------	12	------	22	------	0	7.9	------
TOTAL	232.4	384	446.0	486.7	413	443	359.4	594.3	497.1	62.53	45.49	126.50
MEAN	7.50	12.8	14.4	15.7	14.2	14.3	12.0	19.2	16.6	2.02	1.47	4.22
MAX	12	14	19	35	18	18	18	49	73	7.4	14	9.1
MIN	5.5	11	8.0	7.0	10	12	9.7	9.1	2.5	0	0	.90
AC-FT	461	762	885	965	819	879	713	1,180	986	124	90	251

CAL YR 1967: TOTAL 6,303.75 MEAN 17.3 MAX 729 MIN .78 AC-FT 12,500
WTR YR 1968: TOTAL 4,090.42 MEAN 11.2 MAX 73 MIN 0 AC-FT 8,110

PEAK DISCHARGE (BASE, 1,400 CFS).--NO PEAK ABOVE BASE.

7-1579. Cavalry Creek at Coldwater, Kans.

Location.--Lat 37°16'00", long 99°20'40", in NE¼NE¼ sec. 14, T. 32 S., R. 19 W., at downstream side of county highway bridge, 1 mile west of Coldwater, Commanche County, and at mile 18.3.

Drainage area.--39 sq mi.

Records available.--December 1956 to September 1966 (annual peaks only). October 1966 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 2,018.474 ft above mean sea level, datum of 1929. Prior to September 30, 1966, crest-stage gage at present site and at datum 8.0 ft higher.

Extremes.--Maximum and minimum discharges for the water years 1967-68 are contained in the following table:

	Maximum			Minimum	
Water Year	Date	Discharge (cfs)	Gage-height (feet)	Date	Discharge (cfs)
1967	Unknown	117	3.38	Aug. 2	.03
1968	Aug. 16	1,590	5.75	Aug. 9, 10	.12

1957-68: Maximum gage height, 8.68 ft, present datum June 16, 1958 (discharge not determined).
1966-68: Maximum discharge, 1,590 cfs Aug. 16, 1968 (gage height, 5.75 ft); minimum, .03 cfs Aug. 2, 1967.

Remarks.--Records good except those for periods of no gage-height record, which are poor.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1966 TO SEPTEMBER 1967

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.36	.65	.90	.45	.90	1.1	1.2	.74	.95	.55	.30	.18
2	.36	.65	.90	.50	.90	1.1	1.2	.90	.74	.55	.12	.16
3	.36	.65	.90	.50	.90	1.1	1.1	.74	.74	.50	.14	.16
4	.42	.65	.90	.55	.90	1.1	1.1	.65	.84	.50	.18	.21
5	.42	.65	.90	.60	.90	1.1	1.1	1.4	.65	.45	.18	.49
6	.42	.65	.74	.65	1.1	.90	1.1	1.5	.65	.45	.14	.57
7	.42	.65	.65	.55	1.1	.90	.74	1.1	.84	.40	.14	.49
8	.42	.65	.57	.50	1.1	.65	1.2	.74	.74	.40	.14	.36
9	.42	.65	.57	.55	1.1	.65	.90	.90	.65	.35	.25	.42
10	.42	.74	.57	.65	1.1	.74	.74	.90	.65	.35	.21	.30
11	.42	.74	.57	.75	1.1	.74	1.5	.90	.57	.70	.18	.25
12	.42	.74	.57	.90	.90	.74	2.3	.90	.55	5.0	.18	.25
13	.42	.74	.57	1.1	.90	.74	1.8	.90	.55	2.5	.18	.30
14	.49	.74	.57	1.1	.74	.74	1.1	.90	.50	2.0	.16	.25
15	.57	.74	.57	1.1	.90	.90	.74	1.1	.50	1.6	.14	.25
16	.57	.74	.57	1.1	.90	.90	.65	1.1	.45	1.3	.14	.25
17	.65	.90	.57	1.1	.90	.90	.65	1.1	.45	1.1	.14	.30
18	.65	.65	.57	.90	.90	.90	.57	1.1	.45	1.0	.12	.30
19	.65	.57	.49	.90	1.1	1.2	.65	1.1	1.0	.90	.12	.42
20	.65	.65	.49	.90	1.1	1.2	.65	1.4	15	.75	.21	.65
21	.65	.74	.49	.90	1.1	1.2	.74	1.5	7.0	.65	.16	.49
22	.65	.90	.49	.74	1.1	1.2	.65	1.5	3.0	.57	.10	.42
23	.65	.90	.49	.74	1.1	1.4	.65	1.5	1.7	.42	.10	.42
24	.65	.90	.49	.90	1.1	1.4	.65	1.4	1.3	.36	.10	.36
25	.65	.90	.49	.90	1.1	1.4	.74	1.5	1.0	.36	.08	.36
26	.65	1.1	.49	1.4	1.2	1.4	.74	1.5	.85	.42	.08	.84
27	.65	.90	.50	1.5	1.2	1.2	.90	1.8	.75	.42	.10	.84
28	.65	.90	.40	1.5	1.1	1.2	.90	1.8	.65	.36	.10	.65
29	.65	.90	.35	1.5	------	1.1	.90	2.1	.60	.36	.08	.57
30	.65	.90	.40	1.4	------	1.1	.90	5.1	.60	.42	.12	.49
31	.65	------	.45	1.1	------	1.1	------	1.9	------	.36	.14	------
TOTAL	16.66	22.84	18.18	27.93	28.44	32.00	28.76	41.67	44.92	26.05	4.53	12.00
MEAN	.54	.76	.59	.90	1.02	1.03	.96	1.34	1.50	.84	.15	.40
MAX	.65	1.1	.90	1.5	1.2	1.4	2.3	5.1	15	5.0	.30	.84
MIN	.36	.57	.35	.45	.74	.65	.57	.65	.45	.35	.08	.16
AC-FT	33	45	36	55	56	63	57	83	89	52	9.0	24

CAL YR 1966: TOTAL		MEAN	MAX	MIN	AC-FT
WTR YR 1967: TOTAL	303.98	MEAN .83	MAX 15	MIN .08	AC-FT 602

PEAK DISCHARGE (BASE, 310 CFS).--NO PEAK ABOVE BASE.
NOTE.--NO GAGE HEIGHT RECORD JUNE 12 TO JULY 20.

7-1579. Cavalry Creek at Coldwater, Kans.--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.36	.65	.95	.53	1.5	1.1	.95	.57	.42	.75	.39	5.9
2	.30	.65	.95	.59	1.3	1.1	1.1	.57	.39	.68	.44	4.1
3	.25	.65	.95	.59	1.4	1.0	1.2	.57	.43	.70	.33	3.2
4	.21	.65	.95	.61	1.4	1.0	.95	.57	.49	1.8	.27	2.6
5	.30	.65	.95	.74	1.2	.95	.84	.57	.49	.53	.26	1.9
6	.65	.66	.94	.57	1.1	.95	.83	3.4	.82	.57	.22	1.6
7	1.0	.65	.84	.56	.81	.95	.74	1.5	.87	.55	.18	1.4
8	.54	.65	.84	.69	.85	.95	.72	.98	1.2	.49	.16	1.4
9	.42	.59	.84	.83	.82	.88	.65	.92	6.7	.52	.15	1.3
10	.33	.57	.84	.95	.75	.84	.65	.98	3.3	.49	.30	1.2
11	.41	.51	.84	1.1	.65	1.2	.65	1.2	2.4	.48	.32	1.0
12	.38	.49	.84	.96	.65	1.1	.65	1.1	1.6	.45	.25	.90
13	.30	.49	.84	.87	.80	1.1	.65	1.1	1.2	.47	.25	.90
14	.30	.49	.74	.98	.85	.97	.65	1.0	.97	.53	.25	.90
15	.30	.49	.88	1.7	.80	1.2	.63	.88	1.1	.51	.24	.90
16	.30	.49	.91	1.7	.80	1.5	.62	.84	1.2	.49	167	.84
17	.30	.49	.94	1.5	.75	1.5	.65	.84	1.1	.39	71	.84
18	.30	.49	.84	1.3	.75	1.5	.65	.81	.92	.37	6.6	.79
19	.30	.49	.74	1.5	.70	1.5	.68	.74	.78	.32	3.3	.79
20	.30	.49	.73	1.5	.70	1.3	.64	.74	.60	.30	2.7	.74
21	.30	.49	.57	1.4	.80	1.5	.57	1.5	.64	.27	1.9	.74
22	.30	.49	.65	1.4	.85	1.5	.57	1.3	.80	.32	1.5	.84
23	.30	.49	.62	1.6	1.0	1.5	.57	1.2	.83	.29	1.2	.74
24	.30	.49	.61	1.4	1.0	1.5	.55	1.1	.77	.40	1.2	.74
25	.30	.49	.51	1.2	.95	1.6	.49	1.1	1.7	.52	1.0	.68
26	.35	.56	.53	1.2	.95	1.7	.49	.60	.80	.48	.93	.68
27	.36	.57	.61	1.3	.95	1.3	.49	.57	.74	.51	.91	.68
28	.36	.67	.59	1.5	1.1	1.1	.49	.52	.65	.56	4.3	.68
29	.42	.95	.65	1.5	1.2	1.0	.52	.41	.62	.46	4.9	.68
30	.42	.95	.65	1.5	------	.88	.57	.47	.61	.35	33	.62
31	.52	------	.63	1.6	------	.92	------	.44	------	.32	9.4	------
TOTAL	11.48	17.44	23.97	35.37	27.38	37.09	20.41	29.09	35.14	15.87	314.85	40.28
MEAN	.37	.58	.77	1.14	.94	1.20	.68	.94	1.17	.51	10.2	1.34
MAX	1.0	.95	.95	1.7	1.5	1.7	1.2	3.4	6.7	1.8	167	5.9
MIN	.21	.49	.51	.53	.65	.84	.49	.41	.39	.27	.15	.62
AC-FT	23	35	48	70	54	74	40	58	70	31	625	80

CAL YR 1967: TOTAL 299.19 MEAN .82 MAX 15 MIN .08 AC-FT 593
WTR YR 1968: TOTAL 608.37 MEAN 1.66 MAX 167 MIN .15 AC-FT 1,210

PEAK DISCHARGE (BASE, 310 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8-16	2130	5.75	1,590				

7-1657. Verdigris River near Madison, Kans.

Location.--Lat 38°08'15", long 96°06'44", in SW¼ sec. 16, T. 22 S., R. 12 E., on downstream side of bridge on State Highway 57, 1.5 miles east of Madison, Greenwood County, 3.0 miles upstream from Halderman Creek, and at mile 321.9.

Drainage area.--181 sq mi.

Records available.--September 1955 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 1,034.51 ft above mean sea level, datum of 1929, supplementary (Kansas City) adjustment of 1943 (levels by Corps of Engineers). Prior to Oct. 6, 1955, wire-weight gage at same site and datum.

Average discharge.--13 years, 110 cfs (79,640 acre-ft per year).

Extremes.--Maximum discharge during year, 8,600 cfs July 25 (gage height, 20.40 ft); minimum, 5.8 cfs Sept. 29.
1955-68: Maximum discharge, 34,700 cfs July 16, 1958 (gage height, 27.35 ft); no flow for many days in 1955-57, 1964, 1966, 1967.
Flood of July 11, 1951, reached a stage of 33.4 ft from floodmark (discharge, 128,000 cfs, on basis of slope-area measurement of peak flow).

Remarks.--Records good.

Cooperation.--Gage-height record, 31 discharge measurements, 2 observations of no flow and records of daily discharge furnished by Corps of Engineers; records reviewed by Geological Survey.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	85	27	43	55	17	19	67	125	29	196	26
2	43	71	33	41	42	16	17	68	94	29	134	23
3	38	153	61	37	34	14	62	56	79	27	94	19
4	34	133	47	35	32	13	46	46	68	24	71	19
5	31	100	40	34	29	13	28	40	63	22	55	18
6	43	88	36	33	28	12	22	39	55	19	44	17
7	1,320	80	34	31	26	12	20	101	50	17	38	15
8	875	73	32	30	25	13	18	120	70	14	32	14
9	425	68	31	28	24	14	15	70	60	25	28	12
10	262	66	32	28	24	14	14	65	49	16	26	12
11	185	62	33	28	24	12	14	63	121	12	183	10
12	122	58	33	28	23	12	13	57	58	11	146	10
13	99	53	31	26	22	12	13	52	44	9.1	78	10
14	79	50	28	26	21	12	13	79	39	9.1	57	9.5
15	230	48	27	26	20	11	11	69	979	7.3	48	9.1
16	280	46	26	25	20	11	12	57	1,690	8.7	42	7.3
17	133	44	37	25	20	10	41	42	936	8.3	39	7.0
18	99	42	86	36	20	10	36	35	507	131	358	7.6
19	83	39	82	51	20	16	44	30	261	28	252	7.3
20	75	37	60	46	20	16	101	26	147	19	106	7.0
21	67	36	53	49	20	14	91	25	110	14	70	12
22	61	36	49	50	20	12	779	702	78	10	54	7.0
23	56	35	42	50	19	12	1,610	618	64	8.7	44	14
24	55	34	45	44	19	10	626	257	84	396	37	20
25	61	32	56	40	20	10	389	1,660	77	4,830	32	19
26	54	31	51	39	21	10	262	837	71	4,490	28	15
27	50	28	47	38	22	10	167	395	52	824	26	9.5
28	46	27	48	36	22	9.5	125	256	43	1,210	25	7.9
29	44	26	48	36	19	10	96	165	37	612	25	6.7
30	42	27	48	35	------	12	80	131	32	479	28	7.0
31	46	------	47	33	------	14	------	136	------	317	30	------
TOTAL	5,090	1,708	1,350	1,107	711	383.5	4,784	6,364	6,143	13,656.2	2,426	377.9
MEAN	164	56.9	43.5	35.7	24.5	12.4	159	205	205	441	78.3	12.6
MAX	1,320	153	86	51	55	17	1,610	1,660	1,690	4,830	358	26
MIN	31	26	26	25	19	9.5	11	25	32	7.3	25	6.7
AC-FT	10,100	3,390	2,680	2,200	1,410	761	9,490	12,620	12,180	27,090	4,810	750

CAL YR 1967: TOTAL 24,884.1 MEAN 68.2 MAX 7,480 MIN 0 AC-FT 49,360
WTR YR 1968: TOTAL 44,100.6 MEAN 120 MAX 4,830 MIN 6.7 AC-FT 87,470

PEAK DISCHARGE (BASE, 5,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7-25	0330	20.40	8,600				

7-1659. Toronto Reservoir near Toronto, Kans.

Location.--Lat 37°44'30", long 95°56'00", near center of sec. 36, T. 26 S., R. 13 E., in control tower of dam on Verdigris River, 4 miles southeast of town of Toronto, Woodson County, and at mile 271.5.

Drainage area.--730 sq mi.

Records available.--March 1960 to September 1968.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes.--Maximum elevation during year, 921.50 ft July 29 (contents, 118,000 acre-ft); minimum, 901.40 ft Sept. 21 (contents, 21,630 acre-ft).
1960-68: Maximum elevation, 928.35 ft Sept. 16, 1961 (contents, 170,000 acre-ft); minimum since conservation pool first reached, 897.25 ft Mar. 30, 1967 (contents 13,480 acre-ft).

Remarks.--Reservoir is formed by compacted earth-fill dam. Storage began Mar. 15, 1960. Maximum pool is 311,200 acre-ft at elevation 940.6 ft consisting of the following: minimum pool, 13,000 acre-ft at elevation 897.0 ft; conservation pool, 10,290 acre-ft between elevations 897.0 and 901.5 ft; flood-control pool, 172,000 acre-ft between elevations 901.5 and 931.0 ft; uncontrolled storage, 115,900 acre-ft between elevations 931.0 and 940.6 ft. Reservoir is used for flood control and conservation. Figures given herein represent elevations above mean sea level.

Cooperation.--Records furnished by Corps of Engineers.

Capacity table (elevation, in feet, and contents, in acre-feet)

900	17,930	915	76,570
905	32,460	920	107,400
910	51,650	925	145,000

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.99	5.17	1.70	1.84	1.63	1.65	3.21	1.57	2.40	1.84	16.68	1.80
2	1.82	4.43	1.89	1.79	1.60	1.66	2.88	1.59	2.17	1.83	14.80	1.75
3	1.69	3.70	2.15	1.73	1.63	1.65	4.73	1.62	1.87	1.83	12.87	1.72
4	1.66	3.38	2.16	1.66	1.65	1.65	4.15	1.61	1.64	1.82	10.75	1.70
5	1.65	2.83	2.05	1.62	1.65	1.66	3.30	1.58	1.65	1.81	8.84	1.66
6	1.65	2.23	1.90	1.61	1.66	1.66	2.80	1.57	1.68	1.80	5.52	1.56
7	4.01	1.80	1.71	1.60	1.63	1.66	2.30	1.66	1.80	1.78	2.97	1.54
8	5.85	1.69	1.64	1.58	1.62	1.68	1.86	1.76	1.87	1.76	1.86	1.58
9	5.88	1.69	1.67	1.57	1.61	1.69	1.68	1.82	1.89	1.75	1.69	1.55
10	4.78	1.76	1.68	1.55	1.62	1.69	1.60	1.77	1.92	1.73	1.70	1.54
11	3.25	1.78	1.68	1.54	1.61	1.72	1.54	1.72	2.46	1.72	1.70	1.53
12	1.92	1.79	1.70	1.54	1.61	1.60	1.55	1.64	2.40	1.70	1.85	1.52
13	1.62	1.79	1.70	1.55	1.60	1.51	1.55	1.66	2.07	1.67	1.78	1.50
14	1.69	1.77	1.70	1.56	1.59	1.53	1.58	1.65	2.06	1.65	1.67	1.49
15	3.45	1.75	A	1.56	1.59	1.53	1.51	1.60	4.77	1.64	1.59	1.48
16	4.18	1.74	A	1.56	1.59	1.52	1.57	1.54	7.60	1.63	1.63	1.49
17	3.58	1.72	A	1.56	1.57	1.53	1.63	1.51	8.47	1.75	1.70	1.47
18	2.56	1.71	A	1.63	1.56	1.56	1.62	1.53	7.25	1.89	2.71	1.45
19	1.82	1.69	2.01	1.67	1.55	1.57	1.75	1.52	5.08	1.90	3.53	1.44
20	1.72	1.69	1.98	1.72	1.58	1.52	2.10	1.52	2.80	1.85	3.07	1.42
21	1.71	1.68	1.87	1.77	1.57	1.47	2.40	1.52	1.73	1.78	2.29	1.41
22	1.69	1.66	1.82	1.80	1.57	1.47	4.02	2.59	1.75	1.69	1.78	1.45
23	1.65	1.67	1.86	1.79	1.57	1.47	5.36	3.66	1.72	1.59	1.69	1.51
24	1.68	1.66	1.91	1.77	1.58	1.46	4.42	3.51	1.70	1.90	1.74	1.65
25	1.67	1.66	1.97	1.73	1.60	1.48	3.13	6.85	1.75	11.35	1.76	1.66
26	1.71	1.66	2.01	1.73	1.62	1.47	2.19	8.64	1.75	18.49	1.77	1.67
27	1.70	1.64	1.99	1.75	1.63	1.50	1.96	8.22	1.74	20.43	1.78	1.67
28	1.69	1.61	1.96	1.76	1.64	1.51	1.66	6.83	1.72	21.20	1.83	1.67
29	1.84	1.65	1.94	1.82	1.63	1.60	1.49	5.05	1.73	21.04	1.85	1.68
30	2.04	1.65	1.96	1.79	------	3.00	1.53	3.50	1.80	19.81	1.87	1.66
31	4.52	------	1.88	1.69	------	3.27	------	2.48	------	18.35	1.84	------
MAX	5.88	5.17	2.16	1.84	1.66	3.27	5.36	8.64	8.47	21.20	16.68	1.80
MIN	1.62	1.61	1.64	1.54	1.55	1.46	1.49	1.51	1.64	1.59	1.59	1.41
(+)	30,870	22,290	22,890	22,390	22,230	26,970	21,970	24,630	22,680	96,520	22,790	22,310
(‡)	+7,070	-8,580	+600	-500	-160	+4,740	-5,000	+2,660	-1,950	+73,840	-73,730	-480

CAL YR 1967 ..... (‡) +9,750
WTR YR 1968 ..... (‡) -1,490

+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
‡ CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 900 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.
A NO GAGE HEIGHT RECORD.

7-1660. Verdigris River near Coyville, Kans.

Location.--Lat 37°42'20", long 95°54'20", in SW¼ sec. 8, T. 27 S., R. 14 E., on county highway bridge, 1¼ miles upstream from Meadow Creek, 1½ miles northwest of Coyville, Wilson County, 2½ miles downstream from Pig Creek, and at mile 268.0.

Orainage area.--747 sq mi.

Records available.--August 1939 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 845.28 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Jan. 25, 1952, wire-weight gage and Jan. 26, 1952 to July 17, 1961, water-stage recorder, both 100 ft upstream at same datum. July 18, 1961 to Jan. 28, 1962, wire-weight gage at present site and datum. Since Jan. 26, 1961, auxiliary wire-weight gage 3.2 miles downstream.

Average discharge.--29 years, 473 cfs (342,400 acre-ft per year).

Extremes.--Maximum discharge during year, 6,180 cfs July 31 (gage height, 25.81 ft); minimum daily, 0.50 cfs Sept. 29.
1939-68: Maximum discharge, 130,000 cfs July 12, 1951 (gage height, 41.25 ft, from graph based on gage readings), from rating curve extended above 46,000 cfs on basis of slope-area measurement of peak flow; no flow at times in 1939-41, 1953-58.

Remarks.--Records good. Flow regulated since Mar. 15, 1960 by Toronto Reservoir, 3.5 miles upstream (see Sta. no. 1659).
Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

Cooperation.--Gage-height record, 47 discharge measurements, and records of daily discharge furnished by Corps of Engineers; records reviewed by Geological Survey.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	370	448	68	185	254	36	200	88	638	34	6,100	88
2	348	1,560	84	185	187	36	575	86	638	34	5,980	88
3	256	3,170	85	180	94	36	1,620	86	638	34	5,820	88
4	139	1,390	212	180	93	33	1,860	85	550	34	5,620	103
5	94	1,340	404	164	93	30	1,810	85	195	34	5,640	153
6	89	1,320	404	90	93	30	977	74	127	34	5,850	83
7	403	1,020	404	90	93	30	955	49	127	34	5,020	16
8	116	486	262	90	93	32	799	50	127	33	2,150	15
9	784	233	94	90	80	31	393	88	127	33	386	15
10	2,430	175	94	90	58	31	226	179	127	32	92	15
11	3,070	175	94	91	57	49	134	222	167	32	92	15
12	2,660	175	94	79	56	90	70	222	405	31	150	15
13	904	175	94	55	56	80	34	131	598	20	314	15
14	94	175	94	55	56	34	34	122	444	20	314	15
15	304	175	94	55	56	32	34	222	242	20	226	15
16	495	175	94	54	56	21	33	197	148	28	73	15
17	1,510	157	101	55	56	21	33	96	887	21	22	15
18	1,970	135	101	61	56	21	32	34	3,290	45	25	15
19	1,560	135	160	74	49	33	33	34	4,850	98	306	15
20	406	131	334	98	35	92	39	31	4,550	115	1,160	15
21	152	131	431	98	35	80	40	21	2,290	115	1,410	15
22	152	115	288	126	35	30	345	23	148	115	980	16
23	157	94	98	166	35	13	1,330	352	148	115	289	7.2
24	162	94	98	166	35	13	2,870	955	148	119	28	4.9
25	132	94	101	166	35	13	3,070	605	148	292	28	3.5
26	98	94	125	139	36	8.6	2,050	533	148	221	28	1.4
27	98	93	185	94	36	8.8	698	1,830	148	2,370	28	.70
28	98	93	185	94	36	8.8	698	3,350	114	535	28	.70
29	98	87	185	94	36	8.8	479	3,940	34	2,160	32	.60
30	109	67	185	142	------	10	131	3,000	34	5,620	41	.50
31	1,170	------	185	254	------	12	------	2,210	------	6,170	88	------
TOTAL	20,428	13,712	5,437	3,560	1,990	1,004.2	21,602	19,000	22,235	18,598	48,320	864.50
MEAN	659	457	175	115	68.6	32.4	720	613	741	600	1,559	28.8
MAX	3,070	3,170	431	254	254	92	3,070	3,940	4,850	6,170	6,100	153
MIN	89	67	68	54	35	8.8	32	21	34	20	22	.50
AC-FT	40,520	27,200	10,780	7,060	3,950	1,990	42,850	37,690	44,100	36,890	95,840	1,710

CAL YR 1967: TOTAL 105,778.4 MEAN 290 MAX 4,030 MIN 2.2 AC-FT 209,800
WTR YR 1968: TOTAL 176,750.70 MEAN 483 MAX 6,170 MIN .50 AC-FT 350,600

7-1665. Verdigris River near Altoona, Kans.

Location.--Lat 37°29'26", long 95°40'49", in SW¼ sec. 29, T. 29 S., R. 16 E., on downstream side of highway bridge, 2½ miles southwest of Altoona, Wilson County, 2½ miles downstream from Big Cedar Creek, and at mile 227.9.

Drainage area.--1,138 sq mi.

Records available.--October 1938 to September 1968. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 780.18 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Sept. 9, 1944, wire-weight gage at same site and datum.

Average discharge.--30 years, 666 cfs (482,200 acre-ft per year).

Extremes.--Maximum discharge during year, 8,350 cfs Nov. 1 (gage height, 20.36 ft); minimum, 5.7 cfs Sept. 30.
1938-68: Maximum discharge, 71,000 cfs July 12, 1951 (gage height, 31.09 ft); no flow at times in 1939-41, 1952-57.

Remarks.--Records good. Flow regulated by Toronto Reservoir (see Sta. no. 1659). Diversion above station from Altoona Reservoir for municipal supply of Altoona.

Cooperation.--Gage-height record, 31 discharge measurements, and records of daily discharge furnished by Corps of Engineers; records reviewed by Geological Survey.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	410	7,660	126	207	336	64	128	197	1,700	52	5,680	84
2	396	1,890	156	214	322	62	268	142	712	84	5,830	104
3	356	3,180	288	220	254	61	1,580	132	666	62	5,780	104
4	272	3,320	270	220	168	59	3,840	126	666	44	5,630	112
5	194	1,680	303	220	159	57	2,350	122	482	39	5,480	114
6	144	1,540	432	210	155	53	1,620	120	243	36	5,480	166
7	328	1,490	416	150	148	52	1,130	126	172	35	5,580	132
8	1,930	944	400	128	144	55	1,080	108	175	35	4,790	50
9	488	499	288	128	142	59	748	102	172	34	1,520	26
10	1,290	336	168	128	138	61	411	113	164	33	380	20
11	2,650	283	168	126	110	61	278	214	177	32	154	18
12	3,090	267	172	130	102	55	209	257	190	30	128	18
13	2,320	255	166	120	100	106	155	265	479	29	156	18
14	695	245	155	90	98	120	110	236	601	29	309	18
15	214	243	146	86	96	80	92	166	479	22	314	20
16	963	238	142	86	98	57	86	260	300	20	245	20
17	886	233	159	86	98	48	86	238	214	18	130	20
18	1,850	216	186	104	96	47	84	164	1,600	34	782	20
19	2,050	192	195	142	96	346	86	80	3,630	33	313	18
20	1,230	183	222	179	94	342	90	47	4,580	100	459	18
21	406	183	374	190	78	267	94	44	4,300	134	1,290	18
22	221	183	432	188	68	233	114	42	1,540	134	1,450	22
23	204	175	303	204	66	166	1,330	244	233	132	755	28
24	207	153	170	231	64	126	2,230	626	195	134	291	39
25	207	146	168	224	66	108	3,200	5,700	200	3,380	80	70
26	195	144	170	219	68	96	2,950	4,440	192	5,700	42	36
27	142	140	179	197	70	90	1,610	1,450	181	643	36	20
28	132	136	226	153	70	80	758	2,690	179	2,650	35	12
29	132	138	228	150	66	74	735	3,620	155	501	38	9.0
30	205	140	228	183	------	76	432	3,790	66	3,030	40	6.7
31	4,730	------	228	243	------	175	------	3,100	------	5,080	44	------
TOTAL	28,537	26,432	7,264	5,156	3,570	3,336	27,884	28,961	24,643	22,319	53,241	1,360.7
MEAN	921	881	234	166	123	108	929	934	821	720	1,717	45.4
MAX	4,730	7,660	432	243	336	346	3,840	5,700	4,580	5,700	5,830	166
MIN	132	136	126	86	64	47	84	92	66	18	35	67
AC-FT	56,600	52,430	14,410	10,230	7,080	6,620	55,310	57,440	48,880	44,270	105,600	2,700

CAL YR 1967: TOTAL 164,110.8 MEAN 450 MAX 8,510 MIN 3.3 AC-FT 325,500
WTR YR 1968: TOTAL 232,703.7 MEAN 636 MAX 7,660 MIN 6.7 AC-FT 461,600

PEAK DISCHARGE (BASE, 9,000 CFS).--NO PEAK ABOVE BASE.

7-1670. Fall River near Eureka, Kans.

Location.--Lat 37°47', long 96°14', on west line of sec. 17, T. 26 S., R. 11 E., on left downstream side of bridge on State Highway 99, 3 miles southeast of Eureka, Greenwood County, 5 miles downstream from Spring Creek, and at mile 76.3.

Drainage area.--307 sq mi.

Records available.--August 1946 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 988.50 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--22 years, 173 cfs (125,200 acre-ft per year).

Extremes.--Maximum discharge during year, 8,290 cfs June 15 (gage height, 13.50 ft); minimum, 8.7 cfs Sept. 30.
1946-68: Maximum discharge, 91,800 cfs June 29, 1951 (gage height, 29.60 ft, from floodmark in gage house), from rating curve extended above 70,000 cfs on basis of slope-area measurement of peak flow; no flow at times in 1953-57, 1963-64, 1966.
Flood in 1923 reached a stage of 27.1 ft, from floodmarks (discharge, 70,000 cfs).

Remarks.--Records good. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

Cooperation.--Gage-height record, 34 discharge measurements, and records of daily discharge furnished by Corps of Engineers; records reviewed by Geological Survey.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	590	98	60	62	30	15	72	300	94	228	140
2	110	292	102	58	62	30	14	65	246	90	160	102
3	102	482	106	55	55	30	609	58	192	86	125	82
4	98	364	90	51	49	29	72	55	160	69	98	76
5	94	272	76	52	43	29	43	52	135	58	76	65
6	94	240	69	56	43	29	27	43	110	49	55	55
7	1,380	228	62	58	40	28	23	52	116	40	58	46
8	906	210	58	60	40	28	21	94	98	34	49	37
9	402	204	55	62	40	28	20	98	86	50	40	32
10	272	192	52	58	37	28	18	79	79	110	34	30
11	222	186	52	55	37	27	16	72	227	65	89	27
12	204	170	52	50	37	27	16	72	204	46	266	25
13	192	160	49	45	37	25	16	76	130	34	130	23
14	170	155	43	40	37	27	16	86	224	30	90	21
15	855	150	40	37	37	27	16	90	4,620	25	76	20
16	812	140	37	37	40	27	16	76	3,580	27	69	20
17	344	135	49	37	40	27	16	58	1,860	25	55	18
18	246	130	69	40	40	25	16	49	1,130	80	929	18
19	216	125	79	46	40	23	23	40	706	102	766	16
20	192	120	76	55	40	23	43	37	448	58	338	15
21	175	120	72	58	40	23	40	34	298	40	222	14
22	175	120	69	62	40	21	73	55	228	30	165	12
23	175	115	62	62	40	21	592	102	170	23	130	19
24	180	115	58	62	40	21	210	145	155	20	110	14
25	192	120	62	62	37	21	140	2,180	175	2,410	98	12
26	198	120	65	58	32	21	115	1,780	271	1,920	76	18
27	198	110	62	58	32	20	98	688	145	1,310	65	16
28	192	106	62	55	32	18	86	454	106	1,060	62	14
29	192	102	62	55	30	18	79	350	98	858	82	11
30	192	106	62	58	------	18	76	298	94	591	165	8.7
31	563	------	62	62	------	18	------	253	------	448	160	------
TOTAL	9,463	5,679	2,012	1,664	1,179	767	2,565	7,663	16,391	9,882	5,066	1,006.7
MEAN	305	189	64.9	53.7	40.7	24.7	85.5	247	546	319	163	33.6
MAX	1,380	590	106	62	62	30	609	2,180	4,620	2,410	929	140
MIN	94	102	37	37	30	18	14	34	79	20	34	8.7
AC-FT	18,770	11,260	3,990	3,300	2,340	1,520	5,090	15,200	32,510	19,600	10,050	2,000

CAL YR 1967: TOTAL 41,738.8 MEAN 114 MAX 2,130 MIN .10 AC-FT 82,790
WTR YR 1968: TOTAL 63,337.7 MEAN 173 MAX 4,620 MIN 8.7 AC-FT 125,600

PEAK DISCHARGE (BASE, 9,000 CFS).--NO PEAK ABOVE BASE.

7-1675. Otter Creek at Climax, Kans.

Location.--Lat 37°42'30", long 96°13'30", in SW¼ sec. 8, T. 27 S., R. 11 E., near right bank on downstream side of pier of bridge on State Highway 99, half a mile south of Climax, Greenwood County, 5¼ miles upstream from mouth, and 5½ miles downstream from South Branch.

Drainage area.--129 sq mi.

Records available.--August 1946 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 977.76 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--22 years, 64.7 cfs (46,840 acre-ft per year).

Extremes.--Maximum discharge during year, 3,980 cfs Oct. 7 (gage height, 13.17 ft); minimum, 0.10 cfs Sept. 21.
1946-68: Maximum discharge, 44,000 cfs Sept. 13, 1961 (gage height, 28.50 ft), from rating curve extended above 17,000 cfs by logarithmic plotting; no flow at times in 1953-57, 1963, 1964-68.

Remarks.--Records good.

Cooperation.--Gage-height record, 32 discharge measurements, and records of daily discharge furnished by Corps of Engineers; records reviewed by Geological Survey.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	478	30	24	28	12	17	30	27	8.8	3.3	1.2
2	37	190	36	22	26	11	14	27	22	8.8	2.6	1.2
3	32	390	51	20	22	11	116	24	19	8.4	2.0	1.2
4	28	201	38	19	20	10	92	21	16	7.8	1.6	1.2
5	26	135	30	18	18	10	39	19	14	6.7	1.5	.80
6	24	111	27	18	17	9.8	30	18	13	6.0	1.3	.50
7	1,470	97	25	17	16	9.8	29	22	12	5.1	1.2	.40
8	386	88	24	15	16	10	26	31	11	4.8	1.0	.30
9	158	80	23	15	15	10	24	27	10	4.3	.80	.20
10	109	75	23	15	15	10	23	20	9.5	4.0	.70	.20
11	88	69	23	16	15	10	22	20	21	4.3	1.0	.10
12	81	62	22	16	15	9.4	20	25	30	4.3	.90	.10
13	73	56	22	15	15	8.8	20	28	15	3.8	.90	.10
14	62	54	20	14	14	9.1	19	35	34	2.8	.80	.10
15	900	50	18	14	14	9.4	18	36	106	2.6	.90	.10
16	354	48	17	14	15	9.1	18	23	138	3.1	.80	.10
17	130	45	28	15	15	9.1	17	18	51	3.5	1.0	.10
18	95	42	48	17	14	9.8	16	15	32	3.3	29	.10
19	79	38	43	32	14	10	18	14	23	2.2	62	.10
20	71	37	36	29	14	10	40	12	18	2.0	15	.10
21	63	36	32	28	13	10	40	12	15	1.8	7.0	.10
22	59	34	30	30	13	10	35	12	12	1.3	4.0	.40
23	53	32	27	30	13	9.8	420	13	10	1.2	2.6	.70
24	50	31	26	26	13	9.8	97	14	12	1.3	2.0	1.0
25	50	30	32	23	13	9.4	66	275	71	8.7	1.6	.60
26	44	28	32	22	13	9.4	57	144	57	21	1.2	.40
27	39	25	28	22	14	9.1	48	57	23	12	.90	.20
28	36	23	26	20	13	9.1	43	48	16	6.0	1.0	.20
29	40	23	26	19	12	8.5	39	35	13	4.5	1.5	.10
30	36	26	26	23	------	49	35	27	11	4.8	1.5	.10
31	1,220	------	26	30	------	38	------	29	------	4.3	1.3	------
TOTAL	5,937	2,634	895	638	455	370.4	1,498	1,131	861.5	163.5	152.90	12.00
MEAN	192	87.8	28.9	20.6	15.7	11.9	49.9	36.5	28.7	5.27	4.93	.40
MAX	1,470	478	51	32	28	49	420	275	138	21	62	1.2
MIN	24	23	17	14	12	8.5	14	12	9.5	1.2	.70	.10
AC-FT	11,780	5,220	1,780	1,270	902	735	2,970	2,240	1,710	324	303	24

CAL YR 1967: TOTAL 26,965.1 MEAN 73.9 MAX 5,570 MIN 0 AC-FT 53,480
WTR YR 1968: TOTAL 14,748.30 MEAN 40.3 MAX 1,470 MIN .10 AC-FT 29,250

PEAK DISCHARGE (BASE, 5,000 CFS).--NO PEAK ABOVE BASE.

7-1680. Fall River Reservoir near Fall River, Kans.

Location.--Lat 37°39', long 96°04', in NE¼ sec. 3, T. 28 S., R. 12 E., in right bank control tower at dam on Fall River, 4 miles northwest of town of Fall River, Greenwood County, and 54.2 miles above mouth of Fall River.

Drainage area.--585 sq mi.

Records available.--April 1949 to September 1968. Monthly records only prior to October 1957.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929.

Extremes.--Maximum elevation during year, 954.70 ft June 17 (contents, 42,940 acre-ft); minimum, 948.35 ft Sept. 21 (contents, 23,560 acre-ft).
1949-68: Maximum elevation, 987.18 ft July 13, 1951 (contents, 260,200 acre-ft); minimum, 933.08 ft Feb. 3, 1955 (contents, 3,110 acre-ft).

Remarks.--Reservoir is formed by an earth dam. Spillway is a concrete, gravity, ogee weir type, controlled by eight 50- by 25-foot taintor gates, with net length of 400 ft and over-all length, including seven intermediate piers, of 470 ft. Normal regulation is accomplished by means of seven gaged 5- by 8½-foot rectangular sluices through the intermediate piers of spillway. Low-flow releases are regulated by a 30-inch diameter-pipe conduit. A 12-inch water-supply pipe is also included in outlet works. Natural flow was diverted through sluices during period Aug. 12, 1948 to Apr. 19, 1949. Regulated storage began Apr. 20, 1949. Conservation pool stage (elevation, 948.5 ft) was first reached June 5, 1949. Capacity, based on 1939 survey, elevation 996.5 ft (top of dam), elevation 990.0 ft (maximum design pool), 263,000 acre-ft at elevation 987.5 ft (flood-control pool level), and 27,000 acre-ft (17,000 acre-ft of which is for pollution abatement) at elevation 948.5 ft (conservation pool level). Invert of sluices at elevation 915.0 ft and invert of 30-inch conduit at elevation 929.0 ft. Reservoir was designed for flood control and conservation.

Cooperation.--Elevations and contents furnished by Corps of Engineers.

Capacity table (elevation, in feet, and contents, in acre-feet)

947	20,470	953	36,990
949	25,190	955	43,990
951	30,690		

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48.92	51.69	48.66	48.65	48.57	48.63	48.58	48.63	49.42	48.93	48.97	48.88
2	48.82	50.90	48.67	48.62	48.53	48.51	48.55	48.64	49.40	48.85	48.70	48.85
3	48.76	49.76	48.66	48.58	48.54	48.51	49.25	48.65	49.23	48.80	48.73	48.83
4	48.72	49.35	48.64	48.55	48.55	48.52	48.88	48.63	49.02	48.79	48.73	48.84
5	48.67	49.07	48.61	48.56	48.55	48.52	48.57	48.60	48.81	48.77	48.72	48.72
6	48.65	48.76	48.60	48.58	48.55	48.54	48.56	48.61	48.65	48.75	48.70	48.65
7	50.78	48.60	48.56	48.59	48.54	48.53	48.56	48.68	48.70	48.71	48.68	48.62
8	51.85	48.62	48.56	48.59	48.53	48.59	48.55	48.72	48.65	48.67	48.66	48.61
9	51.62	48.67	48.59	48.60	48.53	48.60	48.53	48.75	48.58	48.65	48.65	48.57
10	50.29	48.78	48.60	48.61	48.55	48.61	48.52	48.77	48.54	48.65	48.67	48.55
11	49.05	48.85	48.62	48.63	48.55	48.61	48.50	48.81	48.61	48.63	48.67	48.53
12	48.68	48.90	48.62	48.63	48.57	48.62	48.50	48.83	48.68	48.60	48.80	48.52
13	48.68	48.90	48.62	48.64	48.58	48.51	48.52	48.88	48.63	48.58	48.78	48.50
14	48.82	48.87	48.62	48.64	48.59	48.54	48.54	48.88	48.70	48.56	48.65	48.48
15	50.26	48.83	48.61	48.65	48.60	48.55	48.53	48.84	51.32	48.56	48.59	48.45
16	50.99	48.79	48.62	48.65	48.61	48.55	48.54	48.76	53.95	48.55	48.62	48.45
17	50.28	48.77	48.69	48.66	48.61	48.53	48.58	48.69	54.53	48.59	48.66	48.44
18	49.43	48.76	48.76	48.70	48.62	48.58	48.58	48.66	53.27	48.61	49.15	48.42
19	48.94	48.74	48.78	48.74	48.63	48.58	48.66	48.63	51.07	48.63	49.63	48.40
20	48.71	48.73	48.77	48.76	48.64	48.55	48.73	48.60	49.25	48.64	49.35	48.37
21	48.80	48.71	48.76	48.79	48.64	48.50	48.79	48.57	48.71	48.63	48.95	48.36
22	48.87	48.70	48.75	48.77	48.65	48.49	49.47	48.57	48.75	48.61	48.65	48.47
23	48.92	48.70	48.78	48.73	48.65	48.47	49.76	48.60	48.75	48.58	48.58	48.55
24	48.94	48.69	48.80	48.67	48.66	48.47	49.29	48.66	48.77	48.71	48.63	48.55
25	48.83	48.69	48.84	48.60	48.67	48.47	48.90	50.50	48.97	50.16	48.67	48.53
26	48.73	48.68	48.83	48.59	48.71	48.46	48.78	51.76	49.08	51.65	48.69	48.52
27	48.66	48.66	48.79	48.60	48.75	48.49	48.77	51.20	49.09	52.08	48.71	48.50
28	48.63	48.64	48.74	48.61	48.84	48.50	48.74	50.87	49.05	52.04	48.76	48.49
29	48.68	48.71	48.71	48.67	48.78	48.52	48.70	50.40	48.98	51.80	48.80	48.48
30	48.71	48.70	48.71	48.65	------	48.55	48.64	49.86	48.94	51.10	48.86	48.45
31	50.98	------	48.67	48.61	------	48.60	------	49.46	------	49.94	48.87	------
MAX	51.85	51.69	48.84	48.79	48.84	48.63	49.76	51.76	54.53	52.08	49.63	48.88
MIN	48.63	48.60	48.56	48.55	48.53	48.46	48.50	48.57	48.54	48.55	48.58	48.36
(+)	30,630	24,440	24,360	24,220	24,640	24,190	24,290	26,400	25,040	27,720	24,860	23,820
(‡)	+5,310	-6,190	-80	-140	+420	-450	+100	+2,110	-1,360	+2,680	-2,860	-1,040

CAL YR 1967 ..... (‡) +6,180
WTR YR 1968 ..... (‡) -1,500

\+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
‡ CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 900 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.

7-1685. Fall River near Fall River, Kans.

Location.--Lat 37°38', long 96°03', in NW¼ sec. 2, T. 28 S., R. 12 E., near left bank on downstream side of highway bridge, 0.3 mile downstream from Fall River Dam, 2.5 miles upstream from Salt Creek, 3 miles northwest of town of Fall River, Greenwood County, and at mile 53.9.

Drainage area.--585 sq mi.

Records available.--April 1904 to September 1905 (gage heights only) published as "at Fall River", May 1939 to September 1968. Monthly discharge only for May 1939, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 898.44 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Sept. 30, 1905, chain gage at site 4.7 miles downstream at datum 21.6 ft lower. May 5, 1939 to June 12, 1946, wire-weight gage at present site and datum. June 13 to Aug. 26, 1946, wire-weight gage and Aug. 27, 1946 to Sept. 30, 1957, water-stage recorder, at site 3.1 miles downstream at datum 12.79 ft lower.

Average discharge.--29 years, 313 cfs (226,600 acre-ft per year).

Extremes.--Maximum discharge during year, 4,150 cfs June 18 (gage height, 11.54 ft); minimum, .10 cfs Feb. 29.
1939-68: Maximum discharge, 45,600 cfs Apr. 16, 1945 (gage height, 31.15 ft, present site and datum); no flow at times in 1939-40, 1946, 1955, 1967.
Maximum stages known prior to 1906 (at site and datum used 1904-5); 39.0 ft June 16, 1904; 37.3 ft June 10, 1904; 35.7 ft July 6, 1904; 35.6 ft in 1869; 35.5 ft in 1898.

Remarks.--Records good. Flow regulated by Fall River Reservoir, 0.3 mile above station (see Sta. no. 1680).

Cooperation.--Gage-height record, 33 discharge measurements, and records of daily discharge furnished by Corps of Engineers; records reviewed by Geological Survey.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	321	296	176	135	176	250	44	109	305	174	1,500	69
2	280	1,600	174	135	118	196	76	71	237	174	465	69
3	205	2,710	174	135	73	18	293	71	393	142	76	69
4	174	1,220	174	114	73	18	665	73	390	71	76	105
5	174	815	174	68	73	18	538	73	390	71	76	184
6	160	815	150	53	73	18	73	66	294	71	76	113
7	135	542	132	53	73	18	71	56	171	71	76	53
8	135	284	99	53	73	18	71	56	174	71	76	53
9	1,000	214	73	53	53	19	69	66	174	71	61	53
10	2,380	168	73	53	37	19	58	76	121	71	39	37
11	2,110	168	73	53	37	36	37	76	73	71	39	23
12	842	168	73	53	37	54	20	76	133	60	50	23
13	330	203	73	53	37	45	13	76	176	36	166	23
14	78	242	73	53	37	25	13	131	135	36	245	23
15	78	242	73	53	37	25	13	182	51	36	139	23
16	527	242	73	53	37	25	13	182	51	32	54	23
17	1,580	202	73	53	37	25	13	147	1,180	22	33	23
18	1,560	176	73	53	37	22	13	71	3,330	22	33	23
19	975	176	124	61	37	42	13	71	4,070	23	323	23
20	570	176	174	71	37	76	46	73	2,880	23	725	18
21	128	176	174	71	37	69	76	73	1,020	23	725	12
22	128	149	119	129	36	39	116	73	174	23	546	13
23	128	132	76	174	36	24	616	73	174	23	184	13
24	226	132	76	174	36	24	1,020	73	174	23	17	13
25	324	132	78	174	36	18	770	34	174	23	17	13
26	324	132	119	117	13	13	327	629	174	23	17	13
27	240	132	171	71	.70	11	168	1,050	192	597	17	13
28	174	104	171	71	.10	9.0	168	1,050	204	1,050	17	13
29	174	69	152	71	17	9.0	168	1,020	174	1,050	17	13
30	174	124	135	113	------	9.0	168	1,020	174	1,450	33	13
31	176	------	135	176	------	9.0	------	825	------	1,970	69	------
TOTAL	15,810	11,941	3,687	2,749	1,403.80	1,201.0	5,749	7,722	17,362	7,603	5,987	1,159
MEAN	510	398	119	88.7	48.4	38.7	192	249	579	245	193	38.6
MAX	2,380	2,710	176	176	176	250	1,020	1,050	4,070	1,970	1,500	184
MIN	78	69	73	53	.10	9.0	13	34	51	22	17	12
AC-FT	31,360	23,680	7,310	5,450	2,780	2,380	11,400	15,320	34,440	15,080	11,880	2,300

CAL YR 1967: TOTAL 76,230.70 MEAN 209 MAX 2,710 MIN .10 AC-FT 151,200
WTR YR 1968: TOTAL 82,373.80 MEAN 225 MAX 4,070 MIN .10 AC-FT 163,400

PEAK DISCHARGE (BASE, 8,000 CFS).--NO PEAK ABOVE BASE.

7-1695. Fall River at Fredonia, Kans.

Location.--Lat 37°30'30", long 95°50'00", in NW¼ sec. 24, T. 29 S., R. 14 E., on downstream side of left pier of bridge on State Highway 96, three-quarters of a mile upstream from Clear Creek, 1 mile downstream from Salt Creek, 1 mile south of Fredonia, Wilson County, and at mile 25.3.

Drainage area.--827 sq mi.

Records available.--October 1938 to September 1968. Monthly discharge only for October and November 1938, published in WSP 1311. Published as "near Fredonia" 1952-57.

Gage.--Water-stage recorder. Datum of gage is 819.09 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Dec. 21, 1949, wire-weight gage at same site and datum.

Average discharge.--30 years, 428 cfs (309,900 acre-ft per year).

Extremes.--Maximum discharge during year, 7,030 cfs July 5 (gage height, 16.10 ft); minimum, 14 cfs Sept. 29, 30.
1938-68: Maximum discharge, 49,000 cfs Apr. 16, 1945 (gage height, 36.17 ft); no flow at times in 1939-40.
Maximum stage known since at least 1904, that of Apr. 16, 1945.

Remarks.--Records good. Flow regulated by Fall River Reservoir (see Sta. no. 1680) and during low flow by Fredonia City Water Reservoir 1.0 mile upstream. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

Cooperation.--Gage-height record, 29 discharge measurements, and records of daily discharge furnished by Corps of Engineers; records reviewed by Geological Survey.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	358	2,680	174	141	242	18	57	179	575	221	1,900	63
2	346	844	279	160	232	289	68	118	297	229	1,040	64
3	282	3,310	403	143	163	140	2,260	85	343	174	206	64
4	206	2,450	276	132	114	40	1,710	82	412	137	98	72
5	181	1,050	232	130	109	36	869	80	412	78	96	97
6	177	945	214	91	107	34	411	78	412	72	69	152
7	827	910	172	64	105	36	167	82	260	69	68	96
8	1,340	470	158	78	103	39	139	78	375	68	64	50
9	368	356	122	75	103	39	122	80	216	68	64	48
10	1,830	281	105	75	88	40	113	82	221	66	56	47
11	2,600	245	103	77	66	38	100	85	145	66	39	43
12	1,390	234	103	78	63	39	83	88	90	66	37	27
13	650	226	102	78	62	62	66	91	137	60	42	24
14	250	282	98	77	62	60	53	102	177	40	182	23
15	137	302	95	77	62	40	48	176	149	38	247	24
16	649	296	98	77	63	36	45	196	105	37	127	25
17	1,090	290	105	77	62	37	44	181	100	36	64	25
18	1,930	225	160	85	62	48	42	137	1,990	29	885	25
19	1,180	214	158	124	62	310	40	80	3,530	25	140	25
20	992	208	163	141	62	174	42	75	3,810	24	463	25
21	321	208	196	139	60	132	78	74	2,160	23	672	26
22	163	206	196	132	60	126	120	75	415	23	672	25
23	158	177	140	179	60	88	885	120	181	22	410	29
24	147	167	107	219	60	66	1,070	86	172	22	158	108
25	303	165	111	216	60	62	1,020	2,800	184	132	37	37
26	346	163	113	214	60	58	578	1,310	172	87	24	20
27	338	163	143	153	51	48	278	1,100	174	87	21	18
28	207	163	186	111	30	44	198	1,340	201	1,070	21	16
29	184	137	184	109	21	40	189	1,120	189	1,040	22	14
30	208	111	165	134	------	39	184	1,040	163	1,010	24	14
31	3,820	------	152	187	------	50	------	1,000	------	1,760	27	------
TOTAL	22,978	17,478	5,013	3,773	2,454	2,308	11,079	12,220	17,767	6,879	7,975	1,326
MEAN	741	583	162	122	84.6	74.5	369	394	592	222	257	44.2
MAX	3,820	3,310	403	219	242	310	2,260	2,800	3,810	1,760	1,900	152
MIN	137	111	95	64	21	18	40	74	90	22	21	14
AC-FT	45,580	34,670	9,940	7,480	4,870	4,580	21,970	24,240	35,240	13,640	15,820	2,630

CAL YR 1967: TOTAL 105,798.7 MEAN 290 MAX 3,980 MIN 8.5 AC-FT 209,800
WTR YR 1968: TOTAL 111,250 MEAN 304 MAX 3,820 MIN 14 AC-FT 220,660

PEAK DISCHARGE (BASE, 8,000 CFS).--NO PEAK ABOVE BASE.

7-1698. Elk River at Elk Falls, Kans.

Location.--Lat 37°22'32", long 96°11'07", in SE¼SE¼ sec.3, T. 31 S., R. 11 E., at downstream side of bridge on U.S. Highway 60 in Elk Falls, 2 miles upstream from Wild Cat Creek, Elk County, and at mile 57.5.

Drainage area.--220 sq mi.

Records available.--January 1967 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 897.300 ft above mean sea level (levels by Corps of Engineers).

Extremes .--Maximum discharge during period, 9,610 cfs May 25 (gage height, 18.21 ft); minimum, .2 cfs Sept. 22. 1967-68: Maximum discharge, that of May 25; no flow at times in 1967.

Remarks.--Records good.

Cooperation.--Gage height record, 33 discharge measurements, and records of daily discharge furnished by Corps of Engineers; records reviewed by Geological Survey.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	685	48	32	61	19	24	40	98	34	14	4.5
2	53	168	89	29	53	17	25	36	85	40	11	4.5
3	47	408	107	28	43	16	1,590	34	70	20	9.1	4.0
4	40	276	72	26	37	16	343	30	59	17	7.2	5.5
5	37	157	53	25	36	16	110	28	52	13	6.0	4.5
6	33	125	45	25	35	15	81	27	45	11	4.8	3.4
7	2,000	107	39	22	33	15	70	36	107	9.0	3.4	2.6
8	846	95	36	20	32	18	60	57	111	7.0	2.7	2.0
9	255	87	34	19	30	20	52	51	60	6.0	2.1	2.7
10	161	81	34	20	30	21	45	36	43	4.5	5.8	1.7
11	126	77	33	21	30	20	42	33	36	3.5	12	1.0
12	113	69	32	24	30	19	38	43	66	3.0	3.0	1.3
13	98	61	30	22	28	17	36	57	40	2.5	2.1	1.3
14	13	57	27	20	26	16	35	149	31	2.0	2.1	1.2
15	552	56	25	19	25	15	32	93	563	3.0	2.3	1.1
16	737	53	24	18	25	15	30	54	240	3.0	2.1	.80
17	170	52	41	19	25	16	30	39	115	3.0	15	.40
18	115	49	85	27	25	43	29	33	75	3.0	640	.30
19	89	45	68	52	24	70	28	28	57	2.7	132	.40
20	77	43	53	61	24	42	55	25	47	2.4	46	.40
21	70	43	49	53	24	35	81	24	38	2.0	24	.40
22	62	42	45	50	24	30	90	32	32	1.6	16	.70
23	57	40	39	49	22	26	510	819	26	1.5	11	42
24	55	38	37	41	21	24	134	106	23	1.3	8.0	248
25	54	38	42	35	21	22	81	5,880	26	347	6.3	51
26	53	36	43	32	21	22	69	890	35	115	4.8	19
27	45	33	37	32	21	21	60	342	35	49	3.4	9.4
28	40	30	35	30	21	20	53	258	25	25	2.8	5.5
29	37	30	35	29	20	19	49	159	21	17	3.0	3.2
30	38	35	35	34	------	20	45	116	17	25	4.0	2.1
31	1,040	------	35	62	------	22	------	98	------	19	4.5	------
TOTAL	7,242	3,116	1,407	976	847	707	3,927	9,653	2,278	793.0	1,010.5	424.90
MEAN	234	104	45.4	31.5	29.2	22.8	131	311	75.9	25.6	32.6	14.2
MAX	2,000	685	107	62	61	70	1,590	5,880	563	347	640	248
MIN	33	30	24	18	20	15	24	24	17	1.3	2.1	.30
AC-FT	14,360	6,180	2,790	1,940	1,680	1,400	7,790	19,150	4,520	1,570	2,000	843

CAL YR 1967: TOTAL 24,869.8 MEAN 68.1 MAX 3,020 MIN 0 AC-FT 49,330
WTR YR 1968: TOTAL 32,381.40 MEAN 88.5 MAX 5,880 MIN .30 AC-FT 64,230

PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-07	1900	13.36	5,850	4-03	1300	10.96	4,150
10-15	2200	9.15	2,900	5-25	1045	18.21	9,610
10-31	2000	9.94	3,380				

7-1700. Elk River near Elk City, Kans.

Location.--Lat 37°15'59", long 95°55'04", in SW¼NE¼ sec.18, T. 32 S., R. 14 E., on right bank at downstream side of highway bridge, 150 ft downstream from Salt Creek, 1.8 miles south of Elk City, Montgomery County, and at mile 24.7.

Drainage area.--575 sq mi.

Records available.--October 1938 to September 1968. Monthly discharge only for October and November 1938, published in WSP 1311.

Gage.--Water-stage recorder. Artificial control since July 29, 1954. Datum of gage is 795.80 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to July 29, 1954, wire-weight gage at same site and datum.

Average discharge.--30 years, 300 cfs (217,200 acre-ft per year).

Extremes.--Maximum discharge during year, 10,300 cfs Aug. 18 (gage height, 17.68 ft); minimum, 2.9 cfs Sept. 20-22.
1938-68: Maximum discharge, 100,000 cfs May 6, 1961 (gage height, 33.90 ft, from floodmarks); no flow at times.
Maximum stage known since at least 1869, that of May 6, 1961.

Remarks.--Records good.

Cooperation.--Gage-height record, 29 discharge measurements, and records of daily discharge furnished by Corps of Engineers; records reviewed by Geological Survey.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	124	3,060	68	75	171	44	157	73	1,520	391	37	21
2	103	706	112	72	146	43	101	67	568	739	30	20
3	83	833	633	62	112	41	3,170	62	207	132	24	18
4	72	754	236	58	98	40	3,410	54	146	61	20	20
5	61	361	150	52	88	38	423	48	131	37	14	59
6	52	268	116	51	81	37	255	43	217	29	11	64
7	1,070	224	103	46	75	36	202	46	103	24	9.0	35
8	4,120	191	91	43	72	37	163	59	203	20	7.0	25
9	712	171	84	38	68	42	139	92	146	16	5.2	20
10	303	155	80	37	65	127	118	80	98	14	11	14
11	219	144	81	40	65	118	107	65	75	12	794	12
12	189	130	84	47	64	76	96	59	62	9.5	155	10
13	168	116	81	54	61	58	89	75	76	8.2	62	9.0
14	144	107	73	49	56	47	83	141	59	7.8	57	7.8
15	122	101	65	44	55	42	76	242	234	8.6	68	7.0
16	1,060	96	62	42	55	38	72	132	494	6.7	32	6.1
17	431	91	67	42	55	36	70	86	249	5.8	96	5.2
18	210	88	149	55	54	38	70	64	141	220	6,640	4.5
19	155	84	173	133	54	1,430	68	52	99	52	1,540	3.5
20	126	80	137	171	52	496	70	44	76	20	263	2.9
21	112	78	118	158	51	265	98	41	62	12	128	2.9
22	101	76	124	141	49	320	132	38	52	7.8	80	2.9
23	89	73	110	130	48	191	532	1,420	43	5.5	56	3.5
24	83	70	96	114	47	132	425	582	37	4.9	44	185
25	81	68	103	98	47	112	189	4,680	36	709	36	286
26	84	65	107	88	48	101	134	7,550	36	348	29	107
27	81	61	92	81	49	89	108	1,620	38	126	24	55
28	72	58	84	78	49	80	98	1,580	43	128	22	35
29	65	55	81	78	47	73	89	462	36	122	22	25
30	67	58	78	182	------	101	81	262	29	72	22	18
31	1,500	------	80	202	------	184	------	202	------	42	21	------
TOTAL	11,859	8,422	3,718	2,561	1,982	4,512	10,825	20,021	5,316	3,390.8	10,359.2	1,084.3
MEAN	383	281	120	82.6	68.3	146	361	646	177	109	334	36.1
MAX	4,120	3,060	633	202	171	1,430	3,410	7,550	1,520	739	6,640	286
MIN	52	55	62	37	47	36	68	38	29	4.9	5.2	2.9
AC-FT	23,520	16,700	7,370	5,080	3,930	8,950	21,470	39,710	10,540	6,730	20,550	2,150

CAL YR 1967: TOTAL 67,028.5 MEAN 184 MAX 6,610 MIN 0 AC-FT 132,900
WTR YR 1968: TOTAL 84,050.3 MEAN 230 MAX 7,550 MIN 2.9 AC-FT 166,700

PEAK DISCHARGE (BASE, 9,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
5-25	1900	16.49	9,150	8-18	1200	17.68	10,300

7-1700.5 Elk City Reservoir near Independence, Kans.

Location.--Lat 37°16'39", long 95°46'37", in NW¼ sec. 9, T. 32 S., R. 15 E., in gate tower of dam, on Elk River, 5 miles northwest of Independence, Montgomery County, and at mile 8.7.

Drainage area.--634 sq mi.

Records available.--March 1966 to September 1968.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes.--Maximum elevation during year, 799.32 ft May 27 (contents, 66,620 acre-ft); minimum, 791.91 ft Sept. 23 (contents, 34,320 acre-ft).

Remarks.--Reservoir is formed by compacted earth-fill dam. Storage began Mar. 17, 1966. Total capacity 667,000 acre-ft, consisting of the following: sedimentation, 1,100 acre-ft below elevation 764.0 ft; conservation, 33,500 acre-ft between elevations 764.0 and 792.0 ft; flood control 256,100 acre-ft between elevations 792.0 and 825.0 ft; uncontrolled storage 376,300 acre-ft between elevations 825.0 and 843.7 ft. Reservoir is designed for flood control, pollution control, conservation and recreation. Figures given herein represent elevations above mean sea level.

Cooperation.--Records furnished by Corps of Engineers; reviewed by Geological Survey.

Capacity table (elevation, in feet, and contents, in acre-ft)

790	27,930	796	50,580
792	34,630	798	59,940
794	42,140	800	70,290

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92.63	94.86	92.10	92.03	92.20	92.09	92.24	92.06	93.20	93.95	92.08	92.03
2	92.27	93.76	92.20	91.99	92.16	92.04	92.16	92.03	93.25	94.40	92.03	92.02
3	92.21	92.43	92.62	91.99	92.20	92.03	93.90	91.99	92.83	94.02	92.05	91.99
4	92.21	92.87	92.58	91.99	92.19	92.01	94.90	91.98	92.30	93.42	92.03	92.02
5	92.19	93.09	92.34	91.98	92.19	92.00	93.76	91.97	92.09	92.96	92.03	92.03
6	92.17	92.96	92.16	91.99	92.19	92.00	93.30	91.97	92.20	92.63	92.03	92.06
7	92.98	92.59	92.09	91.98	92.17	92.02	92.81	91.99	92.19	92.29	92.04	92.09
8	95.26	92.33	92.07	91.98	92.17	92.03	92.40	92.01	92.23	92.10	91.99	92.07
9	95.29	92.42	92.09	91.99	92.16	92.04	92.22	92.02	92.28	92.07	91.97	92.05
10	94.48	92.41	92.09	92.02	92.12	92.08	92.15	92.06	92.28	92.06	92.26	92.05
11	93.00	92.41	92.11	92.03	92.12	92.10	92.15	92.10	92.27	92.03	92.88	92.05
12	92.11	92.41	92.10	92.07	92.10	92.12	92.14	92.12	92.17	92.00	92.90	92.04
13	92.15	92.34	92.10	92.09	92.09	92.11	92.14	92.39	92.09	91.98	92.61	92.02
14	92.24	92.24	92.10	92.10	92.08	92.10	92.10	92.38	92.14	92.01	92.39	92.01
15	92.32	92.16	92.11	92.14	92.07	92.08	92.09	92.28	92.29	92.00	92.15	91.99
16	92.93	92.12	92.14	92.15	92.03	92.05	92.07	92.08	92.60	92.00	92.06	91.99
17	93.14	92.11	92.16	92.15	92.02	92.02	92.04	91.98	92.63	91.94	92.16	91.98
18	93.21	92.12	92.22	92.17	92.02	92.08	92.01	91.99	92.37	92.79	96.29	91.96
19	92.58	92.14	92.27	92.21	92.07	93.07	92.13	91.98	92.14	92.64	96.70	91.96
20	92.13	92.15	92.24	92.29	92.04	93.14	92.10	91.98	92.08	92.40	95.41	91.95
21	92.20	92.06	92.11	92.36	92.05	93.04	92.14	91.98	92.04	92.16	93.85	91.94
22	92.26	92.02	92.04	92.35	92.05	92.93	92.19	92.05	92.05	92.00	92.59	91.92
23	92.31	92.02	92.08	92.32	92.07	92.73	92.33	92.80	92.07	91.95	92.16	92.01
24	92.28	92.04	92.11	92.21	92.10	92.50	92.42	92.83	92.05	91.96	92.16	92.13
25	92.29	92.04	92.13	92.13	92.11	92.25	92.20	96.15	92.10	92.35	92.14	92.26
26	92.28	92.04	92.15	92.09	92.14	92.08	92.05	99.20	92.07	92.56	92.11	92.28
27	92.30	92.04	92.15	92.09	92.16	92.02	92.05	98.96	92.08	92.62	92.08	92.27
28	92.31	92.05	92.13	92.12	92.14	92.03	92.05	98.03	92.10	92.79	92.05	92.22
29	92.31	92.05	92.11	92.14	92.12	92.03	92.05	96.22	92.10	92.80	92.05	92.18
30	92.37	92.07	92.07	92.21	------	92.10	92.06	94.18	92.14	92.54	92.05	92.13
31	93.37	------	92.04	92.24	------	92.20	------	92.75	------	92.16	92.04	------
MAX	95.29	94.86	92.62	92.36	92.20	93.14	94.90	99.20	93.25	94.40	96.70	92.28
MIN	92.11	92.02	92.04	91.98	92.02	92.00	92.01	91.97	92.04	91.94	91.97	91.92
(+)	39,920	34,880	34,770	35,470	35,050	35,330	34,840	37,360	35,120	35,190	34,770	35,080
(‡)	+540	-4,840	-110	+700	-420	+280	-490	+2,520	-2,240	+70	-420	+310

CAL YR 1967 ..... (‡) +25,860
WTR YR 1968 ..... (‡) -4,100

\+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
‡ CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 700 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.

7-1700.6 Elk River below Elk City Reservoir, Kans.

Location.--Lat 37°16'46", long 95°46'53", in sec. 9, T. 32 S., R. 15 E., near left bank, 600 ft below Elk City Dam, Montgomery County, and at mile 8.6.

Drainage area.--634 sq mi.

Records available.--October 1965 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 740.00 ft above sea level (levels by Corps of Engineers).

Extremes.--Maximum discharge during year, 4,840 cfs Nov. 3 (gage height 22.70 ft); no flow for part of Oct. 24.
1965-68: Maximum discharge, that of Nov 3, 1967; no flow at times in 1966, 1967.

Remarks.--Records good. Flow regulated by Elk City Dam (see station 7-1700.5).

Cooperation.--Gage-height record, 49 discharge measurements and records of daily discharge furnished by Corps of Engineers; records reviewed by Geological Survey.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,110	518	53	128	263	75	158	77	744	9.3	193	22
2	664	2,710	53	106	199	76	254	77	744	206	50	22
3	176	3,220	57	62	76	76	364	53	906	797	9.6	12
4	74	39	335	66	76	46	1,660	30	1,020	1,120	9.3	3.6
5	75	39	594	57	76	17	2,670	30	464	813	9.3	3.6
6	70	510	424	43	76	11	1,040	21	103	544	9.0	3.6
7	56	906	230	43	77	11	1,040	15	102	544	9.0	3.4
8	56	579	108	33	77	10	816	15	102	292	8.1	3.4
9	623	82	55	16	76	10	433	15	102	60	6.6	3.4
10	1,760	165	55	4.5	76	10	197	15	101	29	6.6	3.4
11	2,790	166	54	4.3	76	44	104	15	101	26	6.8	3.4
12	1,700	168	56	4.3	76	77	103	15	209	17	208	3.2
13	56	231	57	4.3	74	77	103	15	176	12	521	3.2
14	31	301	53	4.3	74	76	103	234	72	11	521	3.2
15	31	252	54	29	75	75	103	406	27	11	420	3.2
16	48	149	56	48	58	75	103	406	26	10	119	3.0
17	75	91	58	58	40	74	103	160	275	9.0	11	3.0
18	75	46	60	67	39	51	94	17	532	138	14	3.0
19	1,160	46	129	68	29	253	88	17	444	324	834	3.0
20	779	120	257	68	19	556	88	12	152	383	2,750	6.4
21	21	192	310	71	19	556	88	8.4	44	383	3,230	10
22	21	109	163	171	19	556	160	8.1	14	230	2,340	10
23	20	53	48	254	19	544	254	246	14	40	742	10
24	15	50	48	254	19	544	387	510	14	11	52	10
25	44	49	48	254	19	544	498	647	14	10	52	56
26	63	50	83	158	19	409	315	767	14	10	52	89
27	61	52	128	72	19	171	78	2,310	14	10	52	88
28	58	53	128	72	49	72	78	3,810	14	10	35	88
29	51	53	128	72	76	61	77	4,470	13	139	23	88
30	50	52	128	148	------	46	77	4,380	12	458	23	88
31	47	------	128	263	------	47	------	2,930	------	625	22	------
TOTAL	11,860	11,051	4,138	2,702.7	1,890	5,250	11,636	21,731.5	6,569	7,281.3	12,338.3	652.0
MEAN	383	368	133	87.2	65.2	169	388	701	219	235	398	21.7
MAX	2,790	3,220	594	263	263	556	2,670	4,470	1,020	1,120	3,230	89
MIN	15	39	48	4.3	19	10	77	8.1	12	9.0	6.6	3.0
AC-FT	23,520	21,920	8,210	5,360	3,750	10,410	23,080	43,100	13,030	14,440	24,470	1,290

CAL YR 1967: TOTAL 63,764.3 MEAN 175 MAX 3,220 MIN 1.4 AC-FT 126,500
WTR YR 1968: TOTAL 97,099.8 MEAN 265 MAX 4,470 MIN 3.0 AC-FT 192,600

7-1705. Verdigris River at Independence, Kans.

Location.--Lat 37°13'26", long 95°40'43", in NE¼NE¼ sec.32, T. 32 S., R. 16 E., near right bank on downstream side of pier of bridge on U.S. Highway 160, 1 mile east of Independence, Montgomery County, 3.6 miles downstream from Elk River, and at mile 194.3.

Drainage area.--2,892 sq mi.

Records available.--August 1895 to September 1904 (monthly figures only, published in WSP 1311), October 1921 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 716.63 ft above mean sea level, datum of 1929. Aug. 2, 1895 to Nov. 30, 1903, staff gage at former milldam 5 miles downstream and 2½ miles northwest of Liberty, at datum about 4 ft lower. Apr. 20 to Sept. 25, 1904, chain gage at Myrtle Street highway bridge three-quarters of a mile upstream at different datum. Nov. 14, 1921 to Sept. 30, 1929, chain gage at Myrtle Street bridge at datum 0.87 ft higher than present datum. Oct. 1, 1929 to Dec. 25, 1933, chain or wire-weight gages at present site and datum.

Average discharge.--56 years, 1,560 cfs (1,129,000 acre-ft per year).

Extremes.--Maximum discharge during year, 14,700 cfs Nov. 1 (gage height, 24.36 ft); minimum, 36 cfs Sept. 18, 19.
1895-1904, 1921-68: Maximum discharge, 117,000 cfs Apr. 17, 1945 (gage height, 47.28 ft); maximum gage height, 47.60 ft May 19, 1943; no flow at times in 1932, 1934, 1936, 1939-40, 1953-55.
Maximum stage known since at least 1885, that of May 19, 1943.

Remarks.--Records good. Flow regulated since 1949 by Fall River Reservoir (see Sta. no. 1680) and since 1960 by Toronto Reservoir (see Sta. no. 1659). Since 1966, some regulation by Elk City Reservoir (see Sta. no. 7-1700.5). Records of chemical analyses and water temperatures for the water year 1968 are published in Part 2 of this report.

Cooperation.--Gage-height record, 33 discharge measurements, and records of daily discharge furnished by Corps of Engineers; records reviewed by Geological Survey.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,120	13,600	339	510	896	185	374	624	6,040	3,820	7,540	100
2	1,770	10,400	417	495	937	178	465	465	2,880	1,800	7,620	149
3	1,090	8,280	900	435	705	393	1,360	352	2,000	1,060	6,660	187
4	746	7,990	1,030	435	505	283	7,730	268	2,360	1,440	5,950	196
5	540	4,570	1,230	450	393	155	7,150	254	1,830	1,170	5,740	196
6	450	3,170	1,240	450	366	125	4,250	244	981	698	5,600	217
7	682	3,560	1,020	399	352	120	2,700	232	768	680	5,670	307
8	3,480	3,000	829	375	352	129	2,320	237	557	556	5,620	215
9	2,560	1,360	712	250	339	133	1,690	225	641	208	3,550	111
10	3,010	1,040	482	230	334	140	998	208	480	149	854	80
11	7,240	849	393	225	315	145	602	238	495	142	1,040	69
12	7,830	768	393	223	268	189	495	352	449	127	264	66
13	4,170	747	393	203	256	187	393	456	521	115	674	60
14	2,110	838	366	220	251	244	331	791	840	120	847	46
15	641	877	339	185	249	259	278	750	892	108	1,110	40
16	900	732	339	208	244	213	263	868	642	86	791	38
17	1,700	692	366	215	218	183	256	763	533	74	380	38
18	2,980	592	420	259	213	172	244	435	1,580	1,300	1,540	36
19	4,680	495	530	331	208	1,150	265	317	5,900	451	2,010	37
20	4,270	498	630	393	194	1,860	337	194	8,040	465	3,110	38
21	1,670	592	844	435	189	1,330	268	160	8,120	495	5,130	40
22	626	558	962	493	174	1,300	358	155	4,900	451	5,170	45
23	420	465	754	610	164	1,100	1,050	539	874	226	3,260	91
24	406	406	488	698	162	935	3,510	1,120	406	164	916	265
25	406	380	380	732	162	820	4,520	9,240	393	639	398	184
26	718	380	380	671	164	725	4,720	13,100	420	6,000	172	208
27	592	366	435	510	170	439	3,140	5,960	380	2,850	133	153
28	525	366	494	406	172	275	1,380	7,090	366	2,130	118	131
29	436	366	575	352	194	256	1,100	9,020	380	2,890	95	120
30	964	352	575	559	------	225	1,010	9,320	340	2,620	96	113
31	5,310	------	558	750	------	261	------	8,230	------	6,410	99	------
TOTAL	65,042	68,289	18,813	12,707	9,146	14,109	53,557	72,207	55,008	39,444	82,157	3,576
MEAN	2,098	2,276	607	410	315	455	1,785	2,329	1,834	1,272	2,650	119
MAX	7,830	13,600	1,240	750	937	1,860	7,730	13,100	8,120	6,410	7,620	307
MIN	406	352	339	185	162	120	244	155	340	74	95	36
AC-FT	129,000	135,400	37,320	25,200	18,140	27,980	106,200	143,200	109,100	78,240	163,000	7,090

CAL YR 1967: TOTAL 399,221 MEAN 1,094 MAX 15,900 MIN 13 AC-FT 791,800
WTR YR 1968: TOTAL 494,055 MEAN 1,350 MAX 13,600 MIN 36 AC-FT 979,900

PEAK DISCHARGE (BASE, 14,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
11-1	1930	24.36	14,700	5-25	2030	24.22	14,500

7-1707. Big Hill Creek near Cherryvale, Kans.

Location.--Lat 37°16'00", long 95°28'05", in SE¼ sec. 7, T. 32 S., R. 18 E., on right downstream abutment of bridge on county road, 4.3 miles east of Cherryvale, Labette County, and at mile 32.5.

Drainage area.--37 sq mi.

Records available.--October 1957 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 795.93 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 6, 1958, wire-weight gage at same site and datum.

Average discharge.--11 years, 19.4 cfs (14,040 acre-ft per year).

Extremes.--Maximum discharge during year, 2,110 cfs Oct. 31 (gage height, 16.50 ft); no flow for many days.
1957-68: Maximum discharge, 5,030 cfs July 5, 1967 (gage height, 18.00 ft); no flow at times in most years.
Maximum stage known, 18.92 ft in 1951, from information by local residents.

Remarks.--Records good.

Cooperation.--Gage-height record, 34 discharge measurements, 6 observations of no flow and records of daily discharge furnished by Corps of Engineers; records reviewed by Geological Survey.

DISCHARGE IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	159	5.2	4.2	22	3.3	15	4.1	132	10	0	0
2	.90	40	5.5	3.7	21	3.2	10	3.6	44	18	0	0
3	.60	64	43	3.4	18	2.9	194	3.1	15	3.9	0	0
4	.60	38	29	3.2	16	2.7	48	2.5	8.9	1.6	0	0
5	.60	21	20	2.7	14	2.6	21	2.3	6.1	1.0	0	0
6	.60	15	14	2.6	12	2.6	15	2.1	4.7	.70	0	0
7	1.7	12	11	2.5	10	2.6	12	2.2	3.9	.50	0	0
8	17	10	8.6	2.3	9.2	2.5	10	2.5	3.2	.40	0	0
9	10	8.8	7.6	2.1	8.0	2.6	8.4	2.7	2.7	.30	0	0
10	5.1	7.8	9.1	2.1	6.8	2.7	7.6	2.7	2.1	.20	0	0
11	3.6	7.2	15	2.1	5.4	3.1	6.9	2.6	1.8	.20	0	0
12	2.9	6.0	13	2.1	4.4	3.1	6.1	2.5	1.5	.10	0	0
13	2.6	5.5	9.5	2.1	4.2	3.0	6.0	5.0	1.2	.10	0	0
14	2.3	5.1	7.6	2.0	3.8	2.9	5.7	72	1.1	.10	0	0
15	2.1	4.7	6.4	1.8	3.6	2.8	5.2	16	1.2	.10	0	0
16	2.0	4.6	6.0	1.7	3.4	2.7	4.4	22	1.2	.10	0	0
17	2.0	4.4	6.6	1.8	3.3	2.6	4.3	12	1.1	.10	0	0
18	1.9	4.2	12	2.3	3.2	3.1	4.0	5.8	.80	.10	.20	0
19	1.8	3.9	12	5.5	3.2	263	5.7	3.6	.70	.40	.20	0
20	1.7	3.7	10	12	3.2	62	39	2.7	.70	1.1	0	0
21	1.6	3.5	8.7	11	3.2	33	11	2.1	.70	.40	0	0
22	1.5	3.4	7.8	10	3.2	47	18	2.0	.60	.20	0	0
23	1.3	3.4	6.0	10	3.1	24	49	38	.40	.10	0	20
24	1.4	3.2	5.2	8.7	3.1	17	21	9.4	.40	0	0	228
25	1.3	3.2	5.0	7.4	3.1	14	11	824	1.1	0	0	12
26	1.3	3.0	5.1	6.6	3.2	12	7.8	151	1.1	0	0	2.7
27	1.3	2.8	4.6	6.0	3.7	9.8	6.5	29	.50	0	0	.70
28	1.3	2.6	4.4	5.7	3.7	8.9	5.7	21	.30	0	0	.50
29	1.6	2.6	4.4	6.1	3.5	8.2	4.9	14	.30	0	0	.20
30	140	2.9	4.3	37	------	7.2	4.6	9.8	.20	.10	0	.10
31	1,070	------	4.2	35	------	8.6	------	7.9	------	0	0	------
TOTAL	1,283.90	455.5	310.8	205.7	204.5	565.7	567.8	1,280.2	239.50	39.80	0.40	264.20
MEAN	41.4	15.2	10.0	6.64	7.05	18.2	18.9	41.3	7.98	1.28	.01	8.81
MAX	1,070	159	43	37	22	263	194	824	132	18	.20	228
MIN	.60	2.6	4.2	1.7	3.1	2.5	4.0	2.0	.20	0	0	0
AC-FT	2,550	903	616	408	406	1,120	1,130	2,540	475	79	.8	524

CAL YR 1967: TOTAL 9,452.00 MEAN 25.9 MAX 1,860 MIN 0 AC-FT 18,750
WTR YR 1968: TOTAL 5,418.00 MEAN 14.8 MAX 1,070 MIN 0 AC-FT 10,750

PEAK DISCHARGE (BASE, 1,200 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-31	1600	16.50	2,110	5-25	1600	15.10	1,660

7-1720. Caney River near Elgin, Kans.

Location.--Lat 37°00'13", long 96°18'54", NW¼SE¼ sec. 16, T. 35 S., R. 10 E., at county highway bridge, 2 miles west of Elgin, Chautauqua County, and at mile 117.8.

Drainage area.--445 sq mi.

Records available.--October 1938 to September 1968. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 763.32 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Sept. 13, 1961, at site 300 ft downstream at same datum.

Average discharge.--30 years, 216 cfs (156,400 acre-ft per year).

Extremes.--Maximum discharge during year, 13,800 cfs May 25 (gage height, 16.27 ft); minimum, 0.9 cfs Aug. 16-17.
1938-68: Maximum discharge, 62,000 cfs Sept. 13, 1961 (gage height, 34.70 ft, from floodmarks); no flow at times.

Remarks.--Records good.

Cooperation.--Gage-height record, 32 discharge measurements, and records of daily discharge furnished by Corps of Engineers; records reviewed by Geological Survey.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	92	33	70	88	45	103	138	324	228	1.2	46
2	78	122	39	67	88	41	102	118	289	265	1.2	43
3	64	126	65	63	85	39	3,870	102	228	63	2.0	38
4	54	107	57	56	80	38	1,510	92	228	59	2.8	1,910
5	46	87	64	54	73	36	648	82	176	46	2.8	864
6	41	72	57	52	74	35	460	73	144	38	2.5	380
7	824	64	53	48	72	33	345	85	223	29	1.8	262
8	1,910	60	50	48	68	30	268	156	276	25	1.6	200
9	478	57	52	50	66	110	225	405	187	21	1.3	163
10	317	56	56	50	64	240	208	205	128	17	1.2	130
11	256	56	54	50	63	165	190	146	103	15	1.2	109
12	242	56	50	50	61	130	180	140	85	13	1.2	93
13	215	56	46	50	59	105	170	306	70	9.9	1.2	80
14	180	54	40	48	54	95	160	876	60	8.2	1.2	67
15	156	54	39	46	52	85	150	388	1,210	7.7	1.0	54
16	190	54	39	45	49	80	140	242	685	8.2	.90	49
17	210	54	45	45	48	73	130	196	356	9.3	.90	46
18	163	53	60	45	46	380	130	171	256	11	3,950	45
19	140	52	84	86	45	1,390	120	146	202	11	1,850	41
20	124	50	88	87	45	436	120	124	163	10	790	38
21	116	49	87	87	45	357	180	118	134	9.3	505	34
22	111	48	88	88	45	376	160	116	111	8.2	295	33
23	100	46	82	88	45	265	360	280	95	7.2	220	51
24	95	44	79	87	45	225	329	323	79	6.3	167	1,200
25	90	40	76	82	45	200	225	7,370	72	5.5	124	366
26	88	36	73	76	45	182	200	2,740	92	4.4	93	218
27	87	35	73	73	46	167	210	1,360	87	3.5	79	158
28	85	34	73	70	49	152	174	783	73	2.8	59	122
29	82	34	72	67	49	140	154	555	61	1.8	50	98
30	84	33	72	76	------	128	181	472	50	1.4	46	80
31	84	------	72	87	------	111	------	366	------	1.3	46	------
TOTAL	6,805	1,781	1,918	1,991	1,694	5,889	11,402	18,674	6,247	946.0	8,300.00	7,018
MEAN	220	59.4	61.9	64.2	58.4	190	380	602	208	30.5	268	234
MAX	1,910	126	88	88	88	1,390	3,870	7,370	1,210	265	3,950	1,910
MIN	41	33	33	45	45	30	102	73	50	1.3	.90	33
AC-FT	13,500	3,530	3,800	3,950	3,360	11,680	22,620	37,040	12,390	1,880	16,460	13,920

CAL YR 1967: TOTAL 30,060.5 MEAN 82.4 MAX 3,830 MIN 0 AC-FT 59,620
WTR YR 1968: TOTAL 72,665.00 MEAN 199 MAX 7,370 MIN .90 AC-FT 144,100

PEAK DISCHARGE (BASE, 6,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
4-03	1600	9.72	6,590	8-18	1130	11.10	7,880
5-25	1200	16.27	13,800				

7-1794. Council Grove Reservoir near Council Grove, Kans.

Location.--Lat 38°40'45", long 96°30'25", in NE¼ sec. 10, T. 16 S., R. 8 E., in control tower near right end of dam on Neosho River, 1 mile northwest of Council Grove, Morris County, and at mile 449.7.

Drainage area.--246 sq mi.

Records available.--October 1964 to September 1968.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes.--Maximum elevation during year, 1,277.42 ft Oct. 13 (contents, 62,480 acre-ft); minimum, 1,269.44 ft Sept. 30 (contents, 36,720 acre-ft).
1964-68: Maximum elevation, 1,279.15 ft June 28, 1967 (contents, 69,060 acre-ft); minimum since conservation pool first reached, 1,265.79 ft Mar. 30, 1967 (contents, 36,720 acre-ft).

Remarks.--Reservoir is formed by compacted earth filled dam. The spillway is a limited service, uncontrolled, emergency type having a width of 500 feet. The outlet works consist of a cut and cover conduit 17 feet in diameter. Regulated storage began October 9, 1964. Maximum pool is 376,900 acre-ft at elevation 1,320.0 ft. Top of flood control pool is 114,300 acre-ft at elevation 1,289.0 ft, and top of conservation pool is 38,300 acre-ft at elevation 1,270.0 ft. The reservoir is designed for flood control, conservation, and related beneficial water uses.

Cooperation.--Records furnished by Corps of Engineers.

Capacity table (elevation, in feet, and contents, in acre-ft)

1,265	25,470	1,275	53,915
1,270	38,310	1,280	72,420

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70.22	70.26	70.11	70.20	70.11	70.11	69.98	70.20	70.47	70.00	70.73	69.91
2	70.18	70.28	70.14	70.17	70.09	70.12	69.99	70.20	70.28	69.99	70.66	69.85
3	70.16	70.38	70.13	70.14	70.07	70.12	70.12	70.20	70.18	69.99	70.61	69.90
4	70.16	70.38	70.14	70.11	70.07	70.11	70.09	70.17	70.15	69.98	70.44	69.92
5	70.19	70.38	70.14	70.11	70.07	70.12	70.07	70.12	70.11	69.97	70.28	69.88
6	70.38	70.36	70.17	70.10	70.05	70.12	70.04	70.07	70.10	69.93	70.16	69.85
7	76.70	70.32	70.17	70.10	70.05	70.12	70.06	70.12	70.10	69.91	70.16	69.80
8	77.10	70.29	70.16	70.09	70.04	70.15	70.05	70.10	70.10	69.91	70.14	69.81
9	77.22	70.26	70.19	70.09	70.03	70.15	70.05	70.08	70.13	69.90	70.12	69.78
10	77.27	70.26	70.21	70.09	70.03	70.15	70.04	70.05	71.13	69.90	70.12	69.77
11	77.32	70.23	70.20	70.10	70.02	70.16	70.00	70.06	71.62	69.88	70.12	69.74
12	77.37	70.21	70.17	70.10	70.02	70.11	70.02	70.04	71.30	69.86	70.12	69.70
13	76.75	70.17	70.13	70.10	70.01	70.07	70.02	70.05	70.90	69.83	70.12	69.66
14	75.32	70.14	70.09	70.10	70.01	70.05	70.06	70.07	70.70	69.82	70.10	69.63
15	74.50	70.13	70.07	70.10	70.01	70.05	70.03	70.10	71.33	69.85	70.09	69.62
16	73.11	70.14	70.05	70.10	70.04	70.04	70.13	70.08	71.92	69.82	70.08	69.61
17	71.64	70.15	70.08	70.12	70.03	70.01	71.23	70.05	71.99	70.09	70.08	69.60
18	70.63	70.13	70.18	70.13	70.03	70.04	71.11	70.03	71.67	70.12	70.08	69.58
19	70.61	70.09	70.22	70.18	70.04	70.06	70.97	69.99	71.37	70.12	70.06	69.57
20	70.60	70.10	70.22	70.22	70.07	70.05	70.89	69.96	71.00	70.10	70.04	69.52
21	70.57	70.09	70.20	70.22	70.05	70.02	71.17	69.95	70.74	70.08	70.03	69.51
22	70.53	70.09	70.18	70.23	70.05	70.02	71.58	70.82	70.55	70.07	70.01	69.50
23	70.50	70.08	70.17	70.20	70.05	70.00	71.09	71.84	70.35	70.03	70.02	69.57
24	70.49	70.07	70.19	70.16	70.06	69.98	70.52	71.80	70.18	71.00	70.04	69.58
25	70.44	70.07	70.22	70.13	70.08	69.99	70.28	71.88	70.05	71.16	70.03	69.55
26	70.43	70.08	70.23	70.10	70.09	70.00	70.20	71.88	70.00	71.23	69.99	69.54
27	70.38	70.08	70.25	70.10	70.11	70.01	70.20	71.87	70.00	71.34	69.97	69.52
28	70.32	70.08	70.26	70.10	70.14	69.99	70.21	71.55	69.99	71.35	69.93	69.49
29	70.32	70.09	70.25	70.11	70.12	70.03	70.21	71.21	69.98	71.30	69.93	69.49
30	70.27	70.10	70.26	70.09	------	70.03	70.21	70.87	70.02	71.09	69.93	69.44
31	70.26	------	70.23	70.09	------	70.02	------	70.63	------	70.94	69.93	------
MAX	77.37	70.38	70.26	70.23	70.14	70.16	71.58	71.88	71.99	71.35	70.73	69.91
MIN	70.16	70.07	70.05	70.09	70.01	69.98	69.98	69.95	69.98	69.82	69.93	69.44
(+)	39,060	38,600	38,980	38,570	38,660	38,370	38,920	40,140	38,370	41,050	38,110	36,720
(‡)	-120	-460	+380	-410	+90	-290	+550	+1,220	-1,770	+2,680	-2,940	-1,390

CAL YR 1967 ..... (‡) +10,460
WTR YR 1968 ..... (‡) -2,460

+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
‡ CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 1,200 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.

7-1795. Neosho River at Council Grove, Kans.

Location.--Lat 38°40', long 96°30', in NW¼ sec. 14, T. 16 S., R. 8 E., on downstream side of center pier of highway bridge at city water plant in north part of Council Grove, Morris County, 300 ft downstream from Mozler Creek, 1 mile upstream from Elm Creek, and at mile 448.0.

Drainage area.--250 sq mi.

Records available.--October 1938 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,205.63 ft above mean sea level datum of 1929 (levels by Corps of Engineers). Prior to June 7, 1940, wire-weight gage and June 7, 1940 to Apr. 20, 1964, graphic water-stage recorder, at present site and datum.

Average discharge.--30 years, 114 cfs (82,530 acre-ft per year).

Extremes.--Maximum discharge during year, 2,550 cfs Oct. 15 (gage height, 13.41 ft); minimum 3.6 cfs Oct. 12.
1938-68: Maximum discharge, 121,000 cfs July 11, 1951 (gage height, 35.5 ft; 36.29 ft, top of surge in gage house; 37.97 ft, floodmark at water plant and in wire-weight gage box at upstream side of bridge), from rating curve extended above 36,000 cfs on basis of slope-area measurement of peak flow; no flow at times in 1938-41, 1947-48, 1954-57, 1963-64.
Maximum stage known, that of July 11, 1951. Flood in 1903 reached a stage of 37.3 ft at water plant, from information by Corps of Engineers.

Remarks.--Records good. Flow regulated by Council Grove Reservoir (see station 7-1794)

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	86	12	63	39	5.1	6.6	61	317	10	260	13
2	55	88	12	63	37	5.0	6.6	61	314	10	260	13
3	15	86	12	62	36	5.2	7.5	61	190	13	260	13
4	18	85	12	61	36	5.5	6.3	61	58	16	260	13
5	23	85	13	39	37	5.4	6.4	61	58	17	258	12
6	27	84	13	21	37	5.4	6.5	61	42	17	149	14
7	623	84	13	21	37	5.2	6.4	61	22	18	13	14
8	6.6	83	13	20	38	5.4	6.4	61	22	18	13	14
9	5.1	84	13	20	26	5.4	6.5	61	22	18	14	14
10	5.0	83	13	19	15	5.4	6.5	54	24	16	14	14
11	4.2	82	27	19	15	16	6.6	40	299	15	13	14
12	3.7	82	56	20	15	33	6.5	40	571	15	13	14
13	1,270	81	57	20	12	33	6.2	40	570	15	13	13
14	2,490	64	57	20	7.8	33	6.5	40	409	15	14	11
15	2,490	40	49	20	7.9	24	6.2	40	196	16	13	11
16	2,400	41	15	20	7.7	12	6.4	39	201	15	13	11
17	2,330	40	15	19	7.4	12	122	40	397	17	13	11
18	1,490	40	16	20	7.5	10	296	42	574	16	13	11
19	97	40	41	27	7.4	7.0	295	44	573	16	13	11
20	97	40	91	36	7.2	7.0	297	40	570	15	13	11
21	94	41	92	37	6.9	6.8	304	28	450	15	13	11
22	92	40	58	64	7.0	6.9	419	38	302	15	13	11
23	89	40	15	102	6.8	6.6	858	173	300	15	14	12
24	93	32	15	104	6.2	6.5	968	391	299	19	15	11
25	83	11	14	104	5.9	6.6	476	595	207	17	13	12
26	88	12	14	75	5.8	6.6	199	231	26	19	13	12
27	88	12	14	40	5.6	6.4	64	205	12	16	13	12
28	86	12	34	40	5.7	6.5	63	579	12	17	13	12
29	83	12	59	40	5.3	6.7	61	574	11	97	13	12
30	87	12	59	40	------	6.8	61	572	10	281	13	11
31	86	------	61	40	------	6.6	------	441	------	260	13	------
TOTAL	14,514.6	1,622	985	1,296	488.1	313.0	4,587.1	4,835	7,058	1,079	1,778	368
MEAN	468	54.1	31.8	41.8	16.8	10.1	153	156	235	34.8	57.4	12.3
MAX	2,490	88	92	104	39	33	968	595	574	281	260	14
MIN	3.7	11	12	19	5.3	5.0	6.2	28	10	10	13	11
AC-FT	28,790	3,220	1,950	2,570	968	621	9,100	9,590	14,000	2,140	3,530	730

CAL YR 1967: TOTAL 39,098.35 MEAN 107 MAX 2,490 MIN .44 AC-FT 77,550
WTR YR 1968: TOTAL 38,923.8 MEAN 106 MAX 2,490 MIN 3.7 AC-FT 77,200

7-1796. Four Mile Creek near Council Grove, Kans.

Location.--Lat 38°38', long 96°30', in the W½ sec. 2, T. 17 S., R. 8 E., at downstream side of bridge on State Highways 13 and 57, 3.3 miles south of Council Grove, Morris County, and at mile 4.4.

Drainage area.--55 sq mi (approximately).

Records available.--March 1963 to September 1968.

Gage.--Digital water-stage recorder. Altitude of gage is 1,225 ft (from topographic map). Prior to Apr. 21, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--5 years, 23.9 cfs (17,300 acre-ft per year).

Extremes.--Maximum discharge during year, 3,760 cfs Oct. 7 (gage height, 13.19 ft), from rating curve extended above 2,300 cfs on basis of slope-area measurement; minimum, .12 cfs Sept. 30.
1963-68: Maximum discharge, 5,680 cfs June 21, 1967 (gage height, 16.35 ft), from rating curve extended above 2,300 cfs on basis of slope-area measurement; no flow at times in 1963-64, 1966-67.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	28	8.7	11	8.7	4.5	22	18	33	3.9	1.8	.46
2	6.2	28	8.7	11	8.1	4.5	20	17	23	3.6	2.7	.35
3	5.6	84	8.1	9.7	7.8	4.5	455	16	20	3.4	3.2	.70
4	4.9	27	7.8	9.3	7.8	4.5	48	15	17	3.4	2.0	4.7
5	4.9	22	7.8	9.3	7.3	4.3	30	14	16	3.2	1.5	1.5
6	245	21	7.6	8.7	7.0	4.3	25	14	15	2.8	1.1	.77
7	2,250	20	7.3	7.6	6.7	4.3	23	14	14	2.6	.92	.52
8	251	19	7.0	7.6	6.7	4.3	20	14	13	2.3	.84	.35
9	86	18	6.7	7.8	6.7	4.1	18	12	13	2.1	.84	.30
10	56	18	6.4	7.8	6.7	4.1	18	12	21	2.1	1.2	.26
11	43	17	6.4	7.8	6.4	4.1	16	12	172	1.9	1.1	.26
12	38	16	6.2	7.6	6.4	4.0	16	11	19	1.6	1.0	.26
13	32	15	5.8	7.0	5.8	3.8	15	11	15	1.4	1.0	.22
14	29	14	5.4	7.0	5.6	3.8	15	12	12	1.2	.84	.19
15	275	14	5.1	7.0	5.6	3.8	14	10	16	1.4	.84	.16
16	55	14	5.1	6.4	5.6	3.8	14	9.5	24	1.9	.77	.16
17	36	14	6.7	7.3	5.6	3.8	33	8.4	15	2.6	.58	.19
18	30	13	49	24	5.6	3.8	16	7.9	12	2.4	.58	.22
19	28	12	27	19	5.6	3.8	14	7.6	11	1.6	.58	.22
20	26	12	16	14	5.6	3.4	20	7.1	9.5	1.2	.40	.16
21	24	12	14	13	5.4	3.4	138	7.1	8.4	1.0	.35	.14
22	23	12	12	12	5.4	3.3	455	39	7.6	.84	.26	.14
23	22	12	11	11	5.4	3.3	87	104	7.1	.77	.26	4.3
24	21	11	13	10	5.1	3.3	39	54	6.5	3.6	2.4	1.9
25	20	11	25	10	5.1	3.3	31	359	6.5	5.8	.84	.58
26	20	9.7	17	10	5.1	3.3	26	50	6.3	19	.52	.30
27	18	9.0	15	9.7	5.1	3.3	24	27	5.8	4.3	.40	.22
28	18	8.7	14	9.0	5.1	3.3	22	24	5.4	3.0	.35	.19
29	18	8.7	13	9.0	4.7	338	21	20	5.0	2.4	.35	.16
30	16	9.0	12	8.4	------	236	20	56	4.3	2.0	.40	.14
31	25	------	12	8.7	------	31	------	121	------	1.8	.46	------
TOTAL	3,733.9	529.1	366.8	307.7	177.7	713.0	1,715	1,103.6	553.4	91.11	30.38	20.02
MEAN	120	17.6	11.8	9.93	6.13	23.0	57.2	35.6	18.4	2.94	.98	.67
MAX	2,250	84	49	24	8.7	338	455	359	172	19	3.2	4.7
MIN	4.9	8.7	5.1	6.4	4.7	3.3	14	7.1	4.3	.77	.26	.14
AC-FT	7,410	1,050	728	610	352	1,410	3,400	2,190	1,100	181	60	40

CAL YR 1967: TOTAL 15,239.29 MEAN 41.8 MAX 2,480 MIN 0 AC-FT 30,230
WTR YR 1968: TOTAL 9,341.71 MEAN 25.5 MAX 2,250 MIN .14 AC-FT 18,530

PEAK DISCHARGE (BASE, 1,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	0630	13.19	3,760	4-22	0130	8.18	1,480
3-29	2030	9.46	1,990	5-25	1200	6.92	1,000
4-03	0645	8.19	1,490	6-11	0100	7.24	1,110

7-1797.3 Neosho River near Americus, Kans.

Location.--Lat 38°28'01", long 96°15'01", near center sec. 24, T. 18 S., R. 10 E., near right bank, 0.1 mile below Ruggles Dam, 2 miles south of Americus, Lyon County, 12.5 miles upstream from Allen Creek, and 24.0 miles upstream from Cottonwood River.

Drainage area.--622 sq mi.

Records available.--June 1963 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,106.99 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Aug. 8, 1963, graphic water-stage recorder at site 0.4 mile upstream at present datum. Aug. 8, 1963 to Oct. 1, 1963, graphic water-stage recorder at present site and datum.

Average discharge.--5 years, 198 cfs (143,300 acre-ft per year).

Extremes.--Maximum discharge during year, 9,870 cfs Oct. 8 (gage height, 27.52 ft); minimum, 12 cfs Sept. 22.
1963-68: Maximum discharge, 10,700 cfs June 22, 1967 (gage height, 28.17 ft); no flow at times.

Remarks.--Records good. Flow regulated by Council Grove Reservoir (see station 7-1794). Low flow occasionally regulated by Ruggles Dam 0.1 mile upstream. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	171	270	94	133	114	46	114	159	1,040	52	273	25
2	174	316	96	193	115	46	102	154	503	44	281	26
3	138	438	95	156	111	46	505	151	437	41	527	22
4	73	538	93	154	103	45	571	137	286	37	373	24
5	64	298	92	152	99	44	156	130	192	37	289	38
6	348	263	87	127	97	44	130	128	182	37	271	34
7	6,630	244	86	90	93	44	132	151	160	33	175	26
8	8,410	242	82	90	91	45	94	142	128	32	50	23
9	1,410	235	81	94	91	43	77	132	122	30	45	20
10	501	232	83	94	87	43	70	123	116	30	39	19
11	371	219	87	94	69	42	66	117	488	30	50	18
12	317	209	104	93	66	41	77	88	715	26	44	17
13	277	202	142	88	63	72	86	87	636	23	40	17
14	1,700	198	136	88	59	77	59	93	624	23	37	16
15	3,440	197	130	88	54	81	57	89	410	23	35	15
16	3,800	177	126	86	52	77	67	81	508	26	33	14
17	2,770	177	96	87	53	54	73	67	956	31	31	14
18	2,540	172	173	115	51	53	330	62	659	45	32	13
19	1,350	166	537	261	50	58	380	59	664	34	31	13
20	336	165	268	206	53	48	364	56	632	26	30	13
21	291	165	244	166	53	42	420	56	614	23	27	13
22	280	164	228	156	51	41	1,090	493	453	21	24	13
23	276	162	173	164	50	40	1,270	1,010	336	19	22	16
24	255	161	153	183	49	40	1,220	715	326	122	27	111
25	227	152	161	176	51	42	1,020	1,340	317	701	54	85
26	217	122	200	174	52	42	557	1,920	233	676	31	32
27	216	115	166	154	50	45	296	468	95	574	25	22
28	212	111	150	122	51	47	186	490	69	180	22	19
29	214	111	157	121	48	102	173	721	68	117	23	17
30	202	99	180	118	------	460	163	695	76	159	24	15
31	207	------	166	114	------	316	------	1,290	------	286	25	------
TOTAL	37,417	6,320	4,666	4,137	2,026	2,266	9,905	11,404	12,045	3,538	2,990	750
MEAN	1,207	211	151	133	69.9	73.1	330	368	402	114	96.5	25.0
MAX	8,410	538	537	261	115	460	1,270	1,920	1,040	701	527	111
MIN	64	99	81	86	48	40	57	56	68	19	22	13
AC-FT	74,220	12,540	9,250	8,210	4,020	4,490	19,650	22,620	23,890	7,020	5,930	1,490

CAL YR 1967: TOTAL 133,850.6 MEAN 367 MAX 9,510 MIN 2.7 AC-FT 265,500
WTR YR 1968: TOTAL 97,464 MEAN 266 MAX 8,410 MIN 13 AC-FT 193,300

7-1797.94 Marion Reservoir near Marion, Kans.

Location.--Lat 38°22'20", long 97°04'55", in NE¼ sec 27, T. 19 S., R. 3 E., on top of dam on Cottonwood River, 3 miles northwest of Marion, Marion County, and at mile 126.7.

Drainage area.--200 sq mi.

Records available.--February to September 1968.

Extremes.--Maximum elevation during period, 1,330.97 ft Sept. 8 (contents, 10,530 acre-ft); minimum, 1,314.63 ft Feb. 26 (contents, 138 acre-ft).

Remarks.--Reservoir is formed by compacted earth-fill dam. Regulated storage began Feb. 26, 1968. Total capacity, 188,100 acre-ft, consisting of the following: dead storage, 740 acre-ft below elevation 1,320.0 ft; conservation, 85,860 acre-ft between elevations 1,320.0 ft and 1,350.5 ft; flood control, 59,900 acre-ft between elevations 1,350.5 ft and 1,358.5 ft; uncontrolled storage, 41,600 acre-ft between elevations 1,358.5 ft and 1,362.8 ft. Reservoir is designed for flood control, water quality control, water supply, recreation, and fish and wildlife conservation. Figures given herein represent elevations above mean sea level.

Cooperation.--Records furnished by Corps of Engineers.

Capacity table (elevation, in feet, and contents, in acre-ft)

1314	104	1324	2,350
1316	228	1326	3,890
1318	422	1328	6,050
1320	738	1330	8,890
1322	1,330	1332	12,480

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						16.00	19.80	26.14	28.99	29.81	30.03	30.62
2						16.18	20.01	26.16	29.00	29.80	30.04	30.59
3						16.26	20.60	26.23	28.99	29.78	30.03	30.66
4						16.43	21.01	26.18	28.98	29.76	30.00	30.92
5						16.64	21.18	26.12	28.98	29.74	29.99	30.96
6						16.83	A	26.16	28.93	29.72	29.98	30.93
7						17.02	A	26.37	28.94	29.68	29.96	30.92
8						17.24	21.47	26.42	28.94	29.67	29.94	30.95
9						17.45	21.50	26.40	29.00	29.70	29.92	30.91
10						17.57	21.50	26.41	29.32	29.67	29.90	30.90
11						17.67	21.57	26.45	29.33	29.64	29.87	30.88
12						17.85	21.64	26.45	29.33	29.61	29.87	30.84
13						17.97	A	26.49	29.30	29.58	29.86	30.81
14						18.14	A	26.52	29.32	29.54	29.83	30.79
15						18.33	21.70	26.61	29.52	29.54	29.83	30.77
16						18.46	22.00	26.61	29.89	29.50	29.91	30.82
17						18.56	22.90	26.66	29.93	29.52	29.95	30.81
18						18.72	23.41	26.66	29.94	29.49	29.99	30.79
19						18.82	24.00	26.64	29.96	29.47	29.99	30.78
20						18.85	25.23	26.56	29.95	29.44	29.98	30.74
21						18.96	25.49	26.53	29.95	29.41	29.95	30.73
22						19.06	25.90	26.66	29.92	29.39	29.91	30.74
23						19.16	25.97	26.97	29.90	29.35	30.00	30.77
24						19.27	25.99	27.14	29.91	29.38	30.04	30.74
25						19.37	26.00	28.20	29.92	29.72	30.02	30.72
26					14.63	19.47	26.01	28.68	29.91	29.97	30.01	30.72
27					15.08	19.57	26.10	28.77	29.86	30.05	29.99	30.69
28					15.40	19.60	26.10	28.83	29.82	30.04	30.14	30.67
29					15.70	19.60	26.16	28.83	29.83	30.02	30.45	30.67
30					------	19.66	26.11	28.83	29.83	30.00	30.60	30.64
31				------	------	19.77	------	28.99	------	30.05	30.64	------
MAX					15.70	19.77	26.16	28.99	29.96	30.05	30.64	30.96
MIN					14.63	16.00	19.80	26.12	28.93	29.35	29.83	30.59
(+)					206	693	3,990	7,370	8,620	8,970	9,950	9,950
(±)						+487	+3,297	+3,380	+1,250	+350	+980	0

CAL YR 1967 ..... (±) --
WTR YR 1968 ..... (±) --

\+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
± CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 1,300 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.
A NO GAGE HEIGHT RECORD.

7-1800. Cottonwood River near Marion, Kans.

Location.--Lat 38°21', long 97°04', in SW¼ sec.36, T. 19 S., R. 3 E., on downstream side of left pier of county highway bridge, 1.1 miles downstream from South Cottonwood River, 2 miles west of Marion, Marion County, and at mile 123.9.

Drainage area.--329 sq mi.

Records available.--October 1938 to September 1968 (discontinued). Monthly discharge only for some periods, published in WSP 1311.

Gage.--Digital water-stage recorder. Datum of gage is 1,289.85 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 3, 1945, wire-weight gage at same site and datum. May 3, 1945 to Apr. 21, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--30 years, 112 cfs (81,080 acre-ft per year).

Extremes.--Maximum discharge during year, 7,740 cfs Oct. 7 (gage height, 19.20 ft); minimum, 1.9 cfs Sept. 27-30.
1938-68: Maximum discharge, 66,000 cfs July 11, 1951 (gage height, 28.57 ft, from floodmark in gage well), from rating curve extended above 13,000 cfs on basis of slope-area measurement of peak flow; no flow at times in 1940, 1954-56.

Remarks.--Records good. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	50	33	42	44	6.7	7.4	9.1	21	2.9	5.4	17
2	26	55	35	40	43	7.4	6.9	9.0	10	4.0	5.8	7.7
3	18	57	35	38	40	6.8	161	8.9	8.4	3.8	6.8	6.0
4	6.2	70	37	35	39	6.9	56	8.7	7.4	3.6	5.7	6.2
5	6.5	62	36	33	37	7.3	19	8.4	6.8	3.6	4.8	5.2
6	39	58	35	31	35	7.7	12	8.8	6.3	3.5	4.1	4.3
7	4,960	56	33	31	33	7.5	11	10	6.0	3.4	3.5	3.6
8	2,310	54	33	28	30	7.6	10	14	5.8	3.2	3.0	3.2
9	357	52	33	28	29	8.5	9.7	10	6.5	3.1	2.7	2.7
10	150	49	32	27	28	8.1	9.4	8.9	7.1	3.3	2.8	2.7
11	133	49	32	27	27	8.0	9.1	8.5	65	3.7	2.9	2.6
12	130	47	33	27	27	7.4	8.9	8.5	19	3.2	3.2	2.6
13	127	47	33	27	25	7.4	9.0	9.0	8.4	2.8	3.1	2.5
14	125	45	31	25	24	7.8	9.0	9.0	6.2	2.9	3.1	2.4
15	122	45	30	25	24	8.9	9.0	9.0	9.2	2.9	3.3	2.4
16	122	44	30	24	24	11	9.3	8.5	142	3.1	3.2	2.3
17	117	43	31	25	23	12	20	8.2	23	3.1	3.9	2.3
18	112	41	38	29	23	11	22	7.8	11	6.5	5.2	2.6
19	109	41	63	39	23	11	12	7.5	7.6	3.2	4.1	2.5
20	107	39	59	46	24	10	83	7.5	6.1	2.7	4.6	2.5
21	103	39	56	50	23	8.5	38	7.3	4.9	2.5	3.3	2.2
22	95	39	52	54	23	7.8	20	12	4.3	2.4	2.5	2.2
23	89	37	49	55	23	7.7	20	32	3.8	2.3	2.5	2.2
24	74	37	48	54	23	7.5	13	13	3.5	2.3	7.0	2.2
25	70	37	49	52	24	7.8	11	117	4.1	70	9.7	2.2
26	67	35	51	52	19	8.8	9.7	171	4.4	293	4.6	2.0
27	66	35	53	52	7.1	8.2	9.4	28	3.9	31	3.3	2.0
28	63	33	49	51	7.2	8.6	9.1	15	3.5	33	16	1.9
29	57	31	47	50	6.6	8.3	9.0	11	3.2	19	72	2.0
30	53	31	47	47	------	7.9	9.0	9.5	2.7	8.0	83	2.5
31	49	------	42	45	------	14	------	15	------	6.2	18	------
TOTAL	9,893.7	1,358	1,265	1,189	757.9	264.1	641.9	610.1	421.1	538.2	303.1	104.7
MEAN	319	45.3	40.8	38.4	26.1	8.52	21.4	19.7	14.0	17.4	9.78	3.49
MAX	4,960	70	63	55	44	14	161	171	142	293	83	17
MIN	6.2	31	30	24	6.6	6.7	6.9	7.3	2.7	2.3	2.5	1.9
AC-FT	19,620	2,690	2,510	2,360	1,500	524	1,270	1,210	835	1,070	601	208

CAL YR 1967: TOTAL 55,522.3 MEAN 152 MAX 8,120 MIN 3.7 AC-FT 110,100
WTR YR 1968: TOTAL 17,346.8 MEAN 47.4 MAX 4,960 MIN 1.9 AC-FT 34,410

PEAK DISCHARGE (BASE, 3,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	1900	19.20	7,740				

7-1804. Cottonwood River near Florence, Kans.

Location.--Lat 38°14'10", long 96°52'37", in NW¼SW¼ sec.10, T. 21 S., R. 5 E., at downstream side of county highway bridge 0.4 mile upstream from Martin Creek, 2.5 miles east of Florence, Marion County, 3.3 miles downstream from Doyle Creek and at mile 102.4.

Drainage area.--754 sq mi.

Records available.--June 1961 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,231.49 ft above mean sea level, datum of 1929. Prior to Dec. 11, 1962, graphic water-stage recorder at present site and datum. Since Aug. 10, 1965, auxiliary water-stage recorder 2.8 miles downstream at datum 1219.49 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 255 cfs (184,600 acre-ft per year).

Extremes.--Maximum discharge during year, 11,000 cfs Oct. 8 (gage height, 24.02 ft); minimum, 16 cfs Sept. 30.
1961-68: Maximum discharge, 46,400 cfs June 10, 1965 (gage height, 27.57 ft); minimum, 5.5 cfs Oct. 11, 1964.
Maximum stage known since at least 1872, 32.5 ft July 11, 1951 from information by local residents.

Remarks.--Records excellent.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106	181	98	90	103	55	58	73	111	35	49	75
2	92	166	101	100	99	55	53	71	85	36	45	58
3	83	202	104	80	94	55	1,280	70	69	35	45	45
4	74	228	102	85	90	54	487	66	60	34	41	45
5	64	206	101	87	90	53	159	64	54	34	38	92
6	85	170	101	80	87	53	105	62	53	33	32	58
7	6,860	160	98	70	84	53	86	75	49	31	31	43
8	9,710	156	96	75	83	55	77	78	49	30	28	37
9	2,210	151	95	78	79	56	72	75	49	30	26	32
10	627	148	93	78	80	56	64	70	52	31	25	27
11	308	146	93	78	79	56	63	67	572	31	26	27
12	270	142	93	75	78	56	61	66	258	30	27	26
13	243	136	86	75	78	55	61	66	87	28	28	26
14	222	129	85	77	75	53	60	67	60	27	28	25
15	219	127	82	78	74	53	56	68	315	27	28	23
16	347	124	82	76	74	53	56	61	533	26	28	23
17	273	123	90	77	74	54	105	59	274	26	28	23
18	210	122	104	93	73	58	110	56	120	26	39	24
19	185	118	155	110	72	59	79	54	155	27	52	24
20	176	116	162	125	72	58	105	53	73	27	37	24
21	165	113	139	137	72	57	265	54	56	24	31	20
22	159	112	122	142	72	56	987	66	50	24	26	20
23	141	112	108	147	72	55	272	116	44	23	22	21
24	138	112	106	133	72	55	145	322	43	22	85	22
25	141	109	106	124	72	56	109	252	45	1,790	93	21
26	140	107	107	122	72	58	95	793	47	1,600	51	18
27	124	102	118	116	66	58	85	218	43	246	33	18
28	129	99	118	116	59	58	80	114	43	961	150	17
29	129	98	116	113	57	62	77	86	39	287	448	17
30	122	98	109	106	------	141	75	74	35	95	434	16
31	139	------	90	104	------	60	------	71	------	60	134	------
TOTAL	23,891	4,113	3,260	3,047	2,252	1,816	5,387	3,487	3,523	5,736	2,188	947
MEAN	771	137	105	98.3	77.7	58.6	180	112	117	185	70.6	31.6
MAX	9,710	228	162	147	103	141	1,280	793	572	1,790	448	92
MIN	64	98	82	70	57	53	53	53	35	22	22	16
AC-FT	47,390	8,160	6,470	6,040	4,470	3,600	10,680	6,920	6,990	11,380	4,340	1,880

CAL YR 1967: TOTAL 128,870 MEAN 352 MAX 16,900 MIN 10 AC-FT 255,600
WTR YR 1968: TOTAL 59,647 MEAN 163 MAX 9,710 MIN 16 AC-FT 118,300

PEAK DISCHARGE (BASE, 3,300 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-8	0600	24.02	11,000				

7-1805. Cedar Creek near Cedar Point, Kans.

Location.--Lat 38°12', long 96°50', in NE¼ sec.25, T. 21 S., R. 5 E., on upstream end of right abutment of highway bridge, 4 miles south of Cedar Point, Chase County, and at mile 9.4.

Drainage area.--110 sq mi.

Records available.--October 1938 to September 1968. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Digital water-stage recorder. Datum of gage is 1,262.50 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Sept. 28, 1944, wire-weight gage at downstream side of present bridge at same datum. Sept. 28, 1944 to Mar. 18, 1963, graphic water-stage recorder at present site and datum.

Average discharge.--30 years, 53.3 cfs (38,590 acre-ft per year).

Extremes.--Maximum discharge during year, 3,450 cfs June 15 (gage height, 13.20 ft); minimum, 4.0 cfs Sept. 29.
1938-68: Maximum discharge, 52,400 cfs June 29, 1951 (gage height, 23.70 ft), from rating curve extended above 7,500 cfs on basis of contracted-opening and flow-over-road measurement of peak discharge; no flow at times.
Maximum stage since at least 1856, that of June 29, 1951. Flood in July 1929 reached a stage of 24.63 ft from floodmarks on house on left bank where flood in 1951 reached a stage of 25.7 ft.

Remarks.--Records good. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	37	21	19	17	12	11	29	58	20	32	13
2	16	32	23	20	16	12	11	28	38	20	29	11
3	15	42	23	19	15	12	248	27	33	19	27	9.1
4	14	52	22	19	15	12	50	26	30	18	24	10
5	14	39	21	19	15	11	28	25	28	17	21	9.6
6	16	32	21	19	15	12	24	26	28	17	20	8.6
7	1,490	30	20	18	15	12	23	35	26	16	19	8.2
8	182	29	20	18	15	12	22	34	26	15	18	7.5
9	76	29	20	19	15	12	21	27	26	14	17	6.8
10	52	29	20	19	15	12	20	25	26	14	16	6.3
11	44	29	20	19	15	12	19	25	35	13	17	6.6
12	38	28	20	19	14	11	19	25	26	13	18	6.4
13	34	26	19	18	14	11	19	25	23	12	17	6.1
14	32	26	18	17	14	11	19	104	21	12	16	5.6
15	1,010	26	18	17	14	11	18	35	1,110	12	15	5.3
16	149	26	18	17	14	12	18	25	227	13	14	6.1
17	66	26	21	18	14	12	23	22	74	13	14	6.6
18	50	25	42	19	13	13	21	21	45	13	18	6.4
19	43	24	54	19	14	14	23	20	37	13	15	6.2
20	39	24	27	18	14	13	70	20	31	12	16	5.6
21	35	24	24	18	13	12	57	20	28	11	17	6.1
22	32	24	21	19	13	11	218	46	27	10	15	5.0
23	30	24	19	18	13	11	193	47	25	9.7	14	6.5
24	31	24	19	18	13	11	56	28	26	12	16	7.7
25	32	23	22	18	13	12	42	564	43	523	14	6.7
26	31	22	22	18	13	13	38	124	36	767	14	5.9
27	29	22	22	18	13	12	35	61	25	74	13	5.6
28	27	21	21	18	13	12	33	49	23	648	13	4.8
29	27	21	21	18	12	13	31	41	21	105	20	4.1
30	26	21	21	17	------	13	30	37	20	53	19	4.4
31	29	------	21	17	------	12	------	65	------	39	15	------
TOTAL	3,727	837	701	567	409	371	1,440	1,686	2,222	2,547.7	553	207.8
MEAN	120	27.9	22.6	18.3	14.1	12.0	48.0	54.4	74.1	82.2	17.8	6.93
MAX	1,490	52	54	20	17	14	248	564	1,110	767	32	13
MIN	14	21	18	17	12	11	11	20	20	9.7	13	4.1
AC-FT	7,390	1,660	1,390	1,120	811	736	2,860	3,340	4,410	5,050	1,100	412

CAL YR 1967: TOTAL 15,450.56 MEAN 42.2 MAX 4,130 MIN .96 AC-FT 30,650
WTR YR 1968: TOTAL 15,268.5 MEAN 41.7 MAX 1,490 MIN 4.1 AC-FT 30,280

PEAK DISCHARGE (BASE, 3,600 CFS).--NO PEAK ABOVE BASE.

7-1820. Cottonwood River at Cottonwood Falls, Kans.

Location.--Lat 38°23'07", long 96°36'19", in SW¼NE¼ sec.24, T. 19 S., R. 7 E., on left bank 1.2 miles downstream from Diamond Creek, 3½ miles west of Cottonwood Falls, Chase County, and at mile 66.7.

Drainage area.--1,327 sq mi.

Records available.--April 1932 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,160.49 ft above mean sea level, datum of 1929. Prior to Feb. 12, 1935, chain gage at the Atchison, Topeka and Santa Fe Railway Co. bridge 11.6 miles downstream at datum 12.57 ft lower. Feb. 12, 1935 to June 27, 1960, graphic water-stage recorder at highway bridge 13.9 miles downstream at datum 13.21 ft lower. June 27, 1960 to Sept. 13, 1960, graphic water-stage recorder at present site and datum.

Average discharge.--36 years, 507 cfs (367,100 acre-ft per year).

Extremes.--Maximum discharge during year, 13,700 cfs Oct. 7 (gage height, 30.74 ft); minimum, 30 cfs Sept. 30.
1932-68: Maximum discharge, 196,000 cfs July 11, 1951 (gage height, 36.8 ft, present site and datum); from rating curve extended above 48,000 cfs on basis of slope-area measurement of peak flow and contracted-opening measurement at gage height 4.6 ft lower; no flow at times in 1955-57.
Flood of July 11, 1951, is maximum known since the valley was first settled in 1858, from information by residents.

Remarks.--Records excellent.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	310	512	251	250	217	127	118	266	494	113	154	154
2	265	488	255	260	208	124	113	254	372	111	127	104
3	235	624	256	210	203	121	338	239	286	109	117	85
4	217	692	253	230	196	120	1,680	222	241	104	110	72
5	213	587	244	237	192	120	569	204	215	99	100	69
6	546	512	242	220	187	117	288	195	193	96	89	106
7	10,200	456	236	190	183	116	226	219	179	92	80	87
8	9,770	433	229	200	177	116	196	237	170	87	75	66
9	9,810	418	224	210	175	116	178	227	169	84	68	57
10	7,270	410	220	209	172	114	166	205	167	82	65	51
11	1,800	402	218	209	169	112	156	195	1,230	80	64	48
12	885	387	217	209	167	111	150	190	797	77	64	47
13	768	374	210	210	162	107	146	192	373	74	66	44
14	687	360	203	195	160	104	142	199	214	70	66	41
15	1,010	351	195	196	160	102	137	263	275	68	66	40
16	2,050	346	193	192	159	101	132	190	2,200	69	65	40
17	917	340	202	194	157	101	147	159	1,520	71	63	40
18	687	328	250	217	156	102	220	146	520	69	65	40
19	594	317	428	261	154	103	216	137	348	68	71	40
20	549	312	389	288	154	105	203	132	327	64	81	40
21	515	306	348	284	154	103	332	129	237	62	68	39
22	492	301	303	285	154	100	2,090	255	200	58	58	38
23	473	297	273	289	153	98	1,580	505	178	55	51	39
24	448	292	258	286	151	96	716	508	164	55	56	40
25	431	285	264	267	153	95	462	823	165	260	81	40
26	429	276	284	252	151	94	389	1,630	173	2,310	112	39
27	413	266	293	245	149	94	350	1,030	169	2,150	76	36
28	389	255	293	239	144	95	322	453	147	503	59	34
29	385	251	286	236	129	96	300	327	135	1,570	135	32
30	369	251	277	228	------	113	281	285	123	427	465	31
31	378	------	250	220	------	201	------	691	------	205	382	------
TOTAL	53,505	11,429	8,044	7,218	4,846	3,424	12,343	10,707	11,981	9,342	3,199	1,639
MEAN	1,726	381	259	233	167	110	411	345	399	301	103	54.6
MAX	10,200	692	428	289	217	201	2,090	1,630	2,200	2,310	465	154
MIN	213	251	193	190	129	94	113	129	123	55	51	31
AC-FT	106,100	22,670	15,960	14,320	9,610	6,790	24,480	21,240	23,760	18,530	6,350	3,250

CAL YR 1967: TOTAL 246,074 MEAN 672 MAX 24,500 MIN 21 AC-FT 488,100
WTR YR 1968: TOTAL 137,677 MEAN 376 MAX 10,200 MIN 31 AC-FT 273,100

PEAK DISCHARGE (BASE, 3,600 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-7	1800	30.74	13,700				

7-1822.5 Cottonwood River near Plymouth, Kans.

Location.--Lat 38°23'51", long 96°21'21", in NE¼SE¼ sec.13, T. 19 S., R. 9 E., at downstream side of county highway bridge, 0.8 mile downstream from Buckeye Creek, 1.5 miles southwest of Plymouth, Lyon County, and at mile 39.2.

Drainage area.--1,740 sq mi.

Records available.--March 1963 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 1,109.04 ft above mean sea level, datum of 1929.

Average discharge.--5 years, 610 cfs (441,600 acre-ft per year).

Extremes.--Maximum discharge during year, 16,800 cfs Oct. 7 (gage height, 33.23 ft); minimum, 39 cfs Sept. 30.
1963-68: Maximum discharge, 57,500 cfs June 5, 1965 (gage height, 35.70 ft); minimum, 8.7 cfs Oct. 21, 1964.
Maximum stage known since at least 1903, 37.8 ft July 11, 1951, from information by local residents.

Remarks.--Records good. Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	546	704	374	350	327	188	203	446	1,190	196	249	259
2	469	746	390	400	313	186	161	416	697	188	207	145
3	411	902	401	300	304	178	1,530	389	557	184	190	118
4	367	1,070	378	300	295	174	1,640	356	460	173	171	111
5	348	926	365	350	287	173	1,200	332	405	164	152	97
6	578	815	358	300	280	171	498	317	363	151	137	96
7	13,400	725	350	250	271	168	369	370	332	146	123	114
8	14,200	692	337	270	265	168	311	400	312	139	116	99
9	12,100	658	333	300	257	168	277	361	293	134	110	86
10	11,400	641	333	330	253	165	257	331	284	129	104	79
11	6,650	626	332	350	247	162	241	314	972	125	104	73
12	1,770	599	328	320	241	159	226	303	1,030	119	208	70
13	1,290	569	317	270	234	153	220	305	689	115	133	66
14	1,110	551	305	250	230	151	216	489	355	111	118	65
15	3,470	535	294	270	229	149	206	381	1,300	108	110	60
16	3,430	521	289	280	228	147	201	336	4,360	114	103	61
17	1,970	510	315	310	225	144	248	269	3,780	114	101	59
18	1,240	493	418	371	221	146	271	238	1,270	111	100	57
19	1,030	476	591	416	219	152	365	216	736	104	224	58
20	932	467	576	441	219	147	613	203	584	99	146	58
21	854	458	523	442	219	143	496	197	485	95	123	55
22	796	448	466	422	217	140	2,410	797	387	92	105	53
23	744	441	421	416	216	136	2,960	1,110	334	87	94	53
24	711	437	411	407	214	134	1,440	873	302	98	93	54
25	667	428	425	393	217	134	849	2,570	301	1,410	91	60
26	653	413	432	375	216	133	687	3,110	327	3,420	117	58
27	629	393	448	361	214	131	602	1,820	315	3,470	115	52
28	594	378	450	352	211	132	547	993	270	1,200	97	46
29	576	372	444	348	200	132	505	662	239	1,420	89	43
30	556	374	434	337	------	281	473	545	216	1,040	241	40
31	554	------	350	329	------	231	------	1,390	------	362	573	------
TOTAL	84,045	17,358	12,188	10,610	7,069	4,976	20,222	20,839	23,145	15,418	4,644	2,345
MEAN	2,711	579	393	342	244	161	674	672	772	497	150	78.2
MAX	14,200	1,070	591	442	327	281	2,960	3,110	4,360	3,470	573	259
MIN	348	372	289	250	200	131	161	197	216	87	89	40
AC-FT	166,700	34,430	24,170	21,040	14,020	9,870	40,110	41,330	45,910	30,580	9,210	4,650

CAL YR 1967: TOTAL 323,605 MEAN 884 MAX 20,600 MIN 28 AC-FT 641,900
WTR YR 1968: TOTAL 222,859 MEAN 609 MAX 14,200 MIN 40 AC-FT 442,000

PEAK DISCHARGE (BASE, 4,900 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-07	1600	33.23	16,800	6-16	1900	22.14	5,360
10-15	1700	23.02	5,710				

7-1824.5 John Redmond Reservoir near Burlington, Kans.

Location.--Lat 38°14'15", long 95°46'05", near center of sec. 9, T. 21 S., R. 15 E., on the dam on Neosho River, 3,300 ft southwest of spillway, 3 miles north of Burlington, Coffey County, and at mile 343.7.

Drainage area.--3,015 sq mi.

Records available.--August 1963 to September 1968.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers). Prior to Sept. 9, 1964, staff gages at same site and datum.

Extremes.--Maximum elevation during year, 1,047.26 ft July 29 (contents, 179,700 acre-ft); minimum, 1,035.81 ft July 29 (contents, 54,980 acre-ft).
1963-68: Maximum elevation, 1,062.39 ft June 15, 1965 (contents 482,200 acre-ft); minimum since pool first filled, 1,035.81 ft Dec. 4, 1966 (contents, 50,440 acre-ft).

Remarks.--Reservoir is formed by compacted earth fill dam. The spillway is a gate-controlled, concrete chute type structure, having a gross width of 664 feet and a net overflow width of 560 feet. Flows over the spillway are controlled by fourteen 40 x 35 foot taintor gages separated by thirteen piers, 8 feet wide. The outlet works consist of two 24 inch low flow control pipes. Filling began Sept. 7, 1963; regulated storage began Sept. 1, 1964. Maximum pool is 873,910 acre-ft at elevation 1,074.5 ft. Top of flood control pool is 644,600 acre-ft at elevation 1,068.0 ft, and top of conservation pool is 56,450 acre-ft at elevation 1,036.0 ft. Reservoir is designed for flood control, water quality control, recreation, fish and wildlife, and future water supply. Figures given herein represent elevations above mean sea level.

Cooperation.--Records furnished by Corps of Engineers.

Capacity table (elevation, in feet, and contents, in acre-feet)

1,035	49,000	1,045	148,800
1,040	91,750	1,050	221,800

ELEVATION, IN FEET, AT 2400 HRS., WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36.30	36.70	36.07	36.05	36.02	36.01	36.58	36.18	38.69	36.17	43.40	36.20
2	36.20	36.77	36.14	36.02	35.99	35.99	36.42	36.13	38.08	36.14	41.80	36.22
3	36.13	36.84	36.20	36.00	35.97	35.99	36.70	36.14	37.30	36.10	40.00	36.23
4	36.12	36.96	36.21	36.00	35.99	35.97	36.88	36.11	36.70	36.09	38.40	36.24
5	36.12	37.04	36.19	36.02	36.00	35.97	36.71	36.03	36.31	36.08	37.10	36.20
6	36.14	36.94	36.20	36.05	36.03	35.96	36.40	36.00	36.18	36.08	36.54	36.17
7	37.62	36.72	36.07	36.05	36.01	35.92	36.06	36.21	36.21	36.09	36.37	36.12
8	40.18	36.53	36.01	36.02	36.00	36.01	35.83	36.26	36.28	36.10	36.23	36.18
9	42.38	36.41	36.05	36.02	35.99	36.03	35.82	36.24	36.31	36.12	36.20	36.14
10	44.43	A	36.05	36.02	35.98	36.06	35.89	36.22	36.32	36.11	36.21	36.12
11	45.08	A	36.03	36.03	35.97	36.08	35.93	36.27	36.27	36.10	36.77	36.11
12	44.96	A	36.07	36.10	35.96	36.08	35.96	36.23	36.32	36.10	36.78	36.09
13	43.67	36.40	36.06	36.08	35.92	35.99	36.03	36.26	36.38	36.07	36.61	36.08
14	42.00	36.33	36.05	36.06	35.93	36.02	36.07	36.29	36.40	36.03	36.40	36.04
15	40.98	36.24	36.04	36.05	35.99	36.03	36.06	36.28	36.50	36.10	36.22	36.02
16	40.63	36.16	36.03	36.04	36.04	36.03	36.10	36.21	37.77	36.12	36.22	36.08
17	40.29	36.13	36.10	36.03	36.05	36.00	36.14	36.13	38.82	36.19	36.24	36.09
18	39.31	36.11	36.19	36.06	36.05	36.09	36.01	36.03	38.69	36.18	36.47	36.08
19	38.24	36.07	36.23	36.07	36.08	36.12	36.04	35.92	37.63	36.10	36.46	36.05
20	37.43	36.10	36.33	36.13	36.09	36.10	36.14	35.84	36.78	36.10	36.37	36.02
21	37.07	36.11	36.32	36.21	36.08	36.07	36.39	35.84	36.57	36.08	36.20	36.04
22	36.70	36.10	36.24	36.27	36.07	36.05	36.90	36.18	36.52	36.06	36.10	36.08
23	36.33	36.08	36.22	36.24	36.07	36.01	38.49	36.97	36.40	36.09	36.09	36.14
24	36.25	36.10	36.21	36.22	36.05	35.97	38.52	37.43	36.37	39.11	36.11	36.14
25	36.12	36.09	36.18	36.20	36.06	35.99	37.68	38.84	36.38	42.39	36.10	36.12
26	36.16	36.12	36.14	36.19	36.07	36.00	37.08	40.41	36.30	45.46	36.09	36.13
27	36.16	36.09	36.12	36.19	36.07	36.01	36.90	41.60	36.20	46.47	36.10	36.11
28	36.17	35.98	36.11	36.14	36.07	36.02	36.68	41.40	36.17	47.14	36.10	36.10
29	36.34	36.02	36.10	36.12	36.02	36.10	36.42	40.70	36.11	46.93	36.10	36.09
30	36.36	36.02	36.16	36.08	------	36.35	36.28	39.81	36.19	46.17	36.13	36.04
31	36.51	------	36.10	36.05	------	36.57	------	39.04	------	44.93	36.15	------
MAX	45.08	37.04	36.33	36.27	36.09	36.57	38.52	41.60	38.82	47.14	43.40	36.24
MIN	36.12	35.98	36.01	36.00	35.92	35.92	35.82	35.84	36.11	36.03	36.09	36.02
(+)	60,480	56,610	57,230	56,840	56,610	60,970	58,650	82,490	57,940	147,860	57,620	56,760
(≠)	+1,120	-3,870	+620	-390	-230	+4,360	-2,320	+23,840	-24,550	+89,920	-90,240	-860

CAL YR 1967 ..... (≠) +5,480
WTR YR 1968 ..... (≠) -2,600

\+ CONTENTS, IN ACRE-FEET, AT END OF MONTH.
≠ CHANGE IN CONTENTS, IN ACRE-FEET.
NOTE.--ADD 1,000 FT TO OBTAIN ELEVATION ABOVE MEAN SEA LEVEL.
A NO GAGE HEIGHT RECORD.

7-1825.1 Neosho River at Burlington, Kans.

Location.--Lat 38°11'40", long 95°44'10", in NW¼ sec. 26, T. 21 S., R. 15 E., at downstream side of highway bridge at Burlington, 0.3 mile upstream from Rock Creek, Coffey County, and at mile 338.4. Records include flow of Rock Creek.

Drainage area.--3,042 sq mi, includes that of Rock Creek.

Records available.--June 1961 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 983.56 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1962, graphic water-stage recorder at same site and datum.

Average discharge.--7 years, 1,179 cfs (853,560 acre-ft per year).

Extremes.--Maximum discharge during year, 11,400 cfs Oct. 12 (gage height, 22.33 ft); minimum, 18 cfs May 27.
1961-68: Maximum discharge, 26,200 cfs Sept. 13, 1961 (gage height, 31.53 ft); minimum daily, 1.1 cfs Sept. 16, 17, 19, 20, 1963.

Remarks.--Records good. Flow regulated by John Redmond Reservoir (see station 7-1824.5). Records of chemical analyses for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,240	346	425	632	689	296	532	1,230	5,240	311	9,750	190
2	1,210	1,120	445	623	622	281	1,080	824	5,010	310	9,420	190
3	946	1,580	450	563	470	278	1,860	595	4,620	286	9,730	234
4	607	1,520	606	511	419	278	2,680	595	3,710	239	8,670	344
5	607	1,530	790	494	419	253	2,970	592	2,480	200	6,620	344
6	535	1,890	776	447	407	222	2,670	470	1,170	137	3,090	250
7	472	2,120	774	445	386	186	2,560	289	414	137	1,480	125
8	3,690	1,970	589	440	385	149	1,580	439	319	137	892	125
9	8,700	1,400	430	440	373	148	442	614	314	139	422	125
10	9,590	790	432	440	360	148	166	570	528	140	143	125
11	10,300	788	433	446	360	185	167	443	852	140	143	125
12	11,300	797	430	447	360	231	165	438	1,040	140	563	112
13	11,000	953	430	445	311	231	167	440	1,650	129	1,290	66
14	10,800	1,180	430	442	232	232	166	532	1,520	99	1,250	66
15	10,600	1,160	414	435	148	233	209	735	1,310	100	1,040	66
16	10,200	1,150	369	436	172	233	297	728	1,500	102	458	56
17	9,860	926	369	372	223	231	435	722	2,900	101	140	21
18	9,450	697	488	429	225	198	648	713	5,640	221	149	21
19	8,740	651	706	430	250	180	650	703	6,830	315	356	21
20	6,100	624	891	430	278	244	665	524	5,460	140	884	21
21	2,910	625	1,270	431	289	244	674	167	2,330	138	1,120	22
22	2,780	625	1,130	599	310	244	1,200	97	1,350	112	696	22
23	2,440	625	784	776	312	243	3,500	616	1,330	73	226	36
24	2,090	627	780	760	310	243	6,310	1,720	1,020	322	102	62
25	1,440	634	779	768	310	203	6,870	1,040	890	856	98	131
26	921	635	776	732	310	152	4,910	40	1,170	1,440	98	131
27	840	626	776	697	310	152	2,200	63	878	199	98	125
28	711	529	770	691	310	152	2,200	3,210	493	159	96	94
29	744	425	693	689	309	157	1,970	5,280	307	2,830	96	94
30	759	425	632	685	------	160	1,510	6,010	311	6,920	110	94
31	505	------	632	680	------	162	------	5,590	------	8,770	190	------
TOTAL	142,087	28,968	19,699	16,855	9,859	6,549	51,453	36,029	62,586	25,342	59,420	3,438
MEAN	4,583	966	635	544	340	211	1,715	1,162	2,086	817	1,917	115
MAX	11,300	2,120	1,270	776	689	296	6,870	6,010	6,830	8,770	9,750	344
MIN	472	346	369	372	148	148	165	40	307	73	96	21
AC-FT	281,800	57,460	39,070	33,430	19,560	12,990	102,100	71,460	124,100	50,270	117,900	6,820

CAL YR 1967: TOTAL 572,575 MEAN 1,569 MAX 11,500 MIN 14 AC-FT 1,136,000
WTR YR 1968: TOTAL 462,285 MEAN 1,263 MAX 11,300 MIN 21 AC-FT 916,900

7-1830. Neosho River near Iola, Kans.

Location.--Lat 37°53'27", long 95°25'50", in NE¼ sec. 9, T. 25 S., R. 18 E., on left bank 1 mile downstream from Elm Creek, 3 miles southwest of Iola, Allen County, and at mile 284.4.

Drainage area.--3,818 sq mi.

Records available.--August 1895 to December 1903 (published as "at Iola"), October 1917 to September 1968. Monthly discharge only for some periods, published in WSP 1311. Figures of daily discharge for August 1895 to January 1898, published in previous reports, have been found unreliable and should not be used.

Gage.--Digital water-stage recorder. Datum of gage is 914.77 ft above mean sea level (levels by Corps of Engineers). Prior to Oct. 1, 1917, staff gage at tailgate of flume at milldam, 4.8 miles upstream at datum 12.2 ft higher. Oct. 1, 1917 to Apr. 27, 1963, graphic water-stage recorder at present site and datum.

Average discharge.--59 years, 1,594 cfs (1,154,000 acre-ft per year).

Extremes.--Maximum discharge during year, 19,400 cfs July 27 (gage height, 20.92 ft); minimum, 43 cfs Sept. 20-22.
1895-1903, 1917-1968: Maximum discharge, 436,000 cfs July 13, 1951 (gage height, 43.0 ft, from floodmark), from rating curve extended above 84,000 cfs on basis of slope-area measurement of peak flow; no flow at times in 1936, 1956.
Maximum stage known since at least 1855, that of July 13, 1951, from information by local newspaper.

Remarks.--Records good. Flow regulated by John Redmond Reservoir (see station 7-1824.5).

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,270	7,250	528	673	866	375	361	1,500	6,790	375	9,300	200
2	1,220	2,310	589	775	892	365	594	1,180	5,870	368	9,710	221
3	1,190	3,110	994	680	820	341	3,400	885	5,130	356	9,710	221
4	923	3,420	1,170	660	642	336	6,920	699	4,610	338	9,570	236
5	679	2,140	1,070	590	564	332	3,450	682	3,410	283	8,400	323
6	655	1,850	1,070	590	546	314	2,950	673	2,200	255	5,560	333
7	1,550	2,250	980	500	516	265	2,650	586	1,130	174	2,180	293
8	4,280	2,220	927	500	482	258	2,510	390	733	155	1,300	175
9	6,790	2,090	730	520	477	200	1,360	523	843	152	812	151
10	9,150	1,390	594	570	466	183	616	716	526	152	576	146
11	9,900	994	589	520	444	180	305	683	758	151	309	143
12	10,700	968	589	500	444	190	257	554	1,100	149	444	143
13	11,500	956	577	460	433	255	247	546	1,220	145	824	143
14	11,200	1,110	552	490	395	268	244	563	1,570	145	1,180	116
15	11,400	1,250	540	510	314	273	229	640	1,410	125	1,130	86
16	14,100	1,230	523	534	228	273	244	810	1,320	119	948	84
17	12,100	1,220	489	528	204	267	367	801	2,910	127	534	81
18	10,300	975	520	482	265	287	497	786	4,420	568	752	68
19	9,630	812	677	534	281	387	720	774	6,320	346	1,360	51
20	8,830	767	888	582	293	383	874	764	6,750	395	883	44
21	4,710	734	1,070	612	336	366	971	604	4,410	202	967	43
22	3,020	728	1,370	624	346	341	1,170	1,090	1,970	153	1,030	51
23	2,840	728	1,110	788	370	321	4,780	2,870	1,360	142	645	88
24	2,350	728	893	918	375	310	6,090	1,460	1,320	472	351	152
25	2,080	715	894	911	375	310	7,070	7,750	1,010	12,800	436	142
26	1,310	709	891	892	380	286	6,940	9,110	988	17,400	234	165
27	1,000	709	889	852	375	216	3,550	1,650	1,160	17,200	189	171
28	904	697	871	820	380	203	2,230	775	904	2,920	164	159
29	819	616	865	826	375	198	2,160	4,450	587	941	158	135
30	1,420	534	786	840	------	372	1,800	5,770	387	4,680	155	113
31	5,530	------	707	846	------	809	------	6,100	------	7,410	152	------
TOTAL	163,350	45,210	24,942	20,127	12,884	9,464	65,556	56,384	73,116	69,198	69,963	4,477
MEAN	5,269	1,507	805	649	444	305	2,185	1,819	2,437	2,232	2,257	149
MAX	14,100	7,250	1,370	918	892	809	7,070	9,110	6,790	17,400	9,710	333
MIN	655	534	489	460	204	180	229	390	387	119	152	43
AC-FT	324,000	89,670	49,470	39,920	25,560	18,770	130,000	111,800	145,000	137,300	138,800	8,880

CAL YR 1967: TOTAL 742,074 MEAN 2,033 MAX 26,100 MIN 14 AC-FT 1,472,000
WTR YR 1968: TOTAL 614,671 MEAN 1,679 MAX 17,400 MIN 43 AC-FT 1,219,000

7-1831. Owl Creek near Piqua, Kans.

Location.--Lat 37°51'00", long 95°34'30", in NW¼ sec. 29, T. 25 S., R. 17 E., at downstream side of highway bridge, 5.4 miles southwest of Piqua, Woodson County, and at mile 15.0.

Drainage area.--177 sq mi.

Records available.--July 1959 to September 1968.

Gage.--Digital water-stage recorder. Altitude of gage is 950 ft (from topographic map). Prior to Apr. 29, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--9 years, 98.6 cfs (71,380 acre-ft per year).

Extremes.--Maximum discharge during year, 15,600 cfs July 25 (gage height, 20.15 ft); minimum, 0.12 cfs Sept. 30.
1959-68: Maximum discharge, 22,000 cfs Sept. 13, 1961 (gage height, 21.78 ft), from rating curve extended above 9,000 cfs by logarithmic plotting; no flow at times in most years.

Remarks.--Records fair.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	3,880	6.8	7.1	31	3.8	39	7.4	16	1.2	12	1.2
2	9.8	713	11	5.7	24	2.6	26	6.2	16	1.0	8.9	1.1
3	6.3	674	115	4.4	19	1.9	1,570	4.9	17	.9	7.3	.95
4	4.4	333	104	3.0	15	1.7	2,800	4.2	12	1.3	5.5	1.0
5	2.9	85	65	2.5	12	1.5	138	3.9	8.4	1.1	4.3	.98
6	2.4	48	33	2.1	9.8	1.5	46	3.6	6.4	1.2	3.8	.92
7	526	35	22	1.6	7.6	1.5	31	3.7	4.5	.8	2.9	.84
8	1,490	27	18	1.3	7.1	1.7	23	3.5	20	.8	2.5	.85
9	114	22	16	1.1	6.2	2.1	19	5.1	11	.9	2.2	.84
10	43	19	15	1.2	5.8	2.0	15	5.6	4.4	.8	2.1	.64
11	25	18	14	1.5	5.4	1.6	12	5.0	3.5	.5	2.4	.53
12	17	17	15	1.6	4.9	1.7	11	4.8	2.6	.8	2.0	.54
13	13	16	15	1.7	4.5	1.8	9.6	5.0	2.1	.6	1.9	.47
14	9.3	14	14	1.4	4.1	2.1	8.1	6.3	2.2	.4	2.0	.48
15	88	13	11	1.4	3.7	2.0	6.8	8.3	25	.4	2.2	.49
16	895	12	9.8	1.4	3.6	2.0	6.1	7.0	20	.4	2.0	.48
17	88	11	11	1.7	3.6	1.6	5.1	5.9	11	.5	1.8	.46
18	35	9.9	13	3.7	3.5	2.0	4.1	4.6	5.9	2.5	3.7	.47
19	22	9.7	25	6.4	3.6	18	4.1	2.8	4.3	4.7	7.0	.44
20	16	9.5	23	12	3.9	17	13	2.5	3.2	3.3	8.6	.52
21	13	8.8	21	15	3.9	11	33	2.5	1.9	1.5	7.7	.62
22	9.9	8.2	20	14	3.9	6.4	76	527	1.4	.9	4.4	1.1
23	8.5	7.5	18	14	3.8	4.2	1,220	1,110	1.2	.5	2.9	61
24	9.2	6.4	18	13	3.8	3.2	143	81	1.3	26	3.6	88
25	9.7	6.9	17	12	3.8	2.4	42	2,000	1.3	8,300	2.8	12
26	13	6.6	18	9.7	3.9	1.9	27	2,950	1.2	4,500	2.0	2.2
27	12	7.3	18	8.6	4.0	1.7	19	307	1.3	580	1.9	.86
28	9.4	6.6	15	8.2	4.0	1.5	16	63	1.1	97	1.7	.25
29	9.1	6.2	11	9.2	3.6	1.4	11	44	.88	55	1.6	.30
30	32	6.3	9.5	13	------	279	9.0	28	1.3	31	1.5	.22
31	2,130	------	7.5	30	------	103	------	20	------	18	1.3	------
TOTAL	5,678.9	6,036.9	729.6	209.5	213.0	485.8	6,382.9	7,232.8	208.38	13,634.0	116.5	180.75
MEAN	183	201	23.5	6.76	7.34	15.7	213	233	6.95	440	3.76	6.03
MAX	2,130	3,880	115	30	31	279	2,800	2,950	25	8,300	12	88
MIN	2.4	6.2	6.8	1.1	3.5	1.4	4.1	2.5	.88	.40	1.3	.22
AC-FT	11,260	11,970	1,450	416	422	964	12,660	14,350	413	27,040	231	359

CAL YR 1967 : TOTAL 39,683.36 MEAN 109 MAX 3,880 MIN 0 AC-FT 78,710
WTR YR 1968 : TOTAL 41,109.03 MEAN 112 MAX 8,300 MIN .22 AC-FT 81,540

PEAK DISCHARGE (BASE, 2,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-8	0400	16.06	2,580	5-26	0400	18.19	4,570
11-1	0900	18.45	5,600	7-25	1900	20.15	15,600
4-04	0400	18.24	4,760				

7-1832. Neosho River near Chanute, Kans.

Location.--Lat 37°43'49", long 95°26'26", in NE¼ sec. 4, T. 27 S., R. 18 E., at downstream side of bridge on U.S. Highway 169, 2.4 miles upstream from Village Creek, 2.7 miles north of Chanute, Neosho County, and at mile 271.1.

Drainage area.--4,195 sq mi, includes that of Village Creek.

Records available.--October 1962 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 887.94 ft above mean sea level, datum of 1929.

Average discharge.--6 years, 1,346 cfs (974,500 acre-ft per year).

Extremes.--Maximum discharge during year, 23,600 cfs July 27 (gage height, 25.71 ft); minimum, 59 cfs Sept. 21.
1962-68: Maximum discharge, 26,700 cfs June 23, 1967 (gage height, 27.36 ft); minimum, 0.2 cfs Sept. 25, 1963.
Maximum stage known since at least 1855, 40.9 ft July 13, 1951, from information by Corps of Engineers.

Remarks.--Records good. Flow regulated by John Redmond Reservoir (see station 7-1824.5).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,520	12,500	578	611	319	360	582	1,660	6,920	436	9,280	186
2	1,400	5,340	683	765	317	262	513	1,380	6,470	418	10,200	236
3	1,270	3,830	1,180	686	304	333	2,210	1,000	5,480	398	10,000	240
4	1,030	4,320	1,660	684	726	322	9,710	750	4,960	373	10,100	249
5	716	2,770	1,320	610	617	329	5,150	710	3,920	325	9,030	310
6	680	2,210	1,310	620	571	324	3,350	702	2,720	290	6,580	361
7	1,610	2,390	1,120	520	543	281	2,900	694	1,580	219	3,110	358
8	6,080	2,520	1,030	510	506	274	2,730	465	1,380	171	1,500	246
9	6,590	2,350	896	500	490	222	1,800	465	1,100	160	1,040	174
10	9,400	1,850	685	583	491	187	805	726	702	155	690	164
11	10,200	1,160	670	538	452	179	412	758	758	155	427	164
12	10,900	1,090	669	523	446	166	302	638	1,240	151	405	164
13	11,800	1,040	646	466	437	211	284	614	1,210	146	683	163
14	11,700	1,120	610	496	420	255	261	654	1,720	149	1,260	157
15	11,900	1,330	592	507	340	263	250	670	1,950	150	1,250	125
16	14,400	1,370	586	503	261	255	249	838	1,540	128	1,120	109
17	13,700	1,350	559	509	201	254	355	838	2,630	143	703	100
18	11,100	1,160	592	489	231	272	446	814	4,210	699	1,750	97
19	10,300	878	676	534	270	738	724	806	6,170	554	1,650	85
20	9,200	843	953	594	277	555	829	798	7,060	441	1,090	68
21	6,000	791	1,070	646	308	430	932	734	5,340	314	985	62
22	3,700	785	1,420	668	331	388	1,090	1,590	2,560	188	1,140	68
23	3,000	732	1,370	731	351	348	4,770	4,810	1,520	167	876	111
24	2,500	777	968	926	356	328	6,860	1,920	1,460	196	470	561
25	2,200	771	930	932	368	319	7,190	12,400	1,220	13,600	470	257
26	1,500	760	932	919	369	312	7,390	15,500	930	20,300	316	177
27	1,090	742	928	890	372	255	4,710	4,570	1,240	23,100	237	177
28	1,010	742	915	853	362	211	2,430	1,180	1,070	8,860	200	168
29	887	712	897	851	346	205	2,340	3,780	738	1,390	191	154
30	1,860	592	849	875	------	253	2,080	5,850	465	3,680	182	128
31	3,470	------	749	907	------	1,210	------	6,330	------	7,440	177	------
TOTAL	178,793	59,925	28,033	20,446	13,172	10,401	73,803	74,644	80,323	84,902	77,121	5,619
MEAN	5,768	1,998	904	660	454	336	2,460	2,408	2,677	2,739	2,488	187
MAX	14,400	12,500	1,660	932	919	1,210	9,710	15,500	7,060	23,100	10,200	561
MIN	680	592	559	466	201	166	248	465	465	128	177	62
AC-FT	354,600	118,900	55,600	40,550	26,130	20,630	146,400	148,100	159,300	168,400	153,000	11,150

CAL YR 1967: TOTAL 834,644 MEAN 2,287 MAX 25,400 MIN 11 AC-FT 1,655,000
WTR YR 1968: TOTAL 707,182 MEAN 1,932 MAX 23,100 MIN 62 AC-FT 1,403,000

7-1835. Neosho River near Parsons, Kans.

Location.--Lat 37°18'30", long 95°06'40", on north line sec. 33, T. 31 S., R. 21 E., on right bank at intake structure of water Filtration Plant, 150 feet upstream from dam of Kansas Army Ammunition Plant, 8 miles southeast of Parsons, and at mile 201.4.

Drainage area.--4,905 sq mi, includes that of Hickory Creek.

Records available.--October 1921 to September 1968. Monthly discharge only October 1921, published in WSP 1311.

Gage.--Digital water-stage recorder. Datum of gage is 810.25 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1929, chain gage at bridge 2.2 miles upstream at datum 0.04 ft lower. Oct. 1, 1929 to Feb. 7, 1935, chain gage; Feb. 8, 1935 to Apr. 27, 1964, graphic water-stage recorder; and Apr. 28, 1964 to Dec. 7, 1966, digital water-stage recorder at bridge 2.7 miles upstream at present datum.

Average discharge.--47 years, 2,364 cfs (1,711,000 acre-ft per year).

Extremes.--Maximum discharge during year, 28,000 cfs May 27 (gage height, 21.95 ft); minimum daily, 87 cfs Sept. 22.
1921-68: Maximum discharge, 410,000 cfs July 14, 1951 (gage height, 40.20 ft, from floodmark in gage well); no flow at times in 1934, 1936, 1939, 1955-57.

Remarks.--Records excellent. Natural flow of stream affected by John Redmond Reservior (see station 7-1824.5). Small diversion by the Kansas Army Ammunition Plant from pool in which gage is located. Records of chemical analyses and water temperatures for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,180	19,500	672	756	1,330	462	1,140	2,030	13,000	560	7,350	195
2	1,340	16,900	663	760	1,250	448	736	1,660	11,600	558	9,140	185
3	1,210	7,580	875	700	1,160	443	1,080	1,410	6,990	545	10,100	206
4	1,160	6,340	1,440	781	1,100	398	4,440	1,100	5,860	454	10,000	250
5	1,030	5,600	1,760	729	893	364	9,010	877	5,220	409	9,970	251
6	1,640	3,240	1,490	730	750	360	4,920	767	4,090	367	8,670	262
7	3,590	2,400	1,430	570	676	354	3,340	756	2,790	316	6,060	335
8	4,670	2,600	1,260	550	641	334	2,910	756	1,720	277	2,800	347
9	6,950	2,620	1,170	549	604	330	2,700	580	3,230	218	1,490	295
10	7,620	2,430	1,600	589	582	311	1,820	513	1,700	182	1,080	215
11	9,520	1,920	1,700	662	575	255	954	756	1,040	169	731	175
12	10,300	1,370	1,280	634	544	241	560	882	1,240	161	519	158
13	11,000	1,270	992	537	522	229	407	796	1,300	153	400	156
14	11,700	1,210	854	558	506	221	368	1,690	1,330	148	625	155
15	11,800	1,260	782	585	494	282	338	1,590	1,770	148	1,180	154
16	12,100	1,450	730	585	432	317	315	1,260	2,040	147	1,190	149
17	14,100	1,450	713	575	356	311	309	1,170	1,660	144	1,090	129
18	14,000	1,420	727	604	301	307	345	1,000	2,890	443	848	113
19	11,500	1,270	759	659	272	3,310	686	901	4,580	1,060	2,020	104
20	10,400	1,010	826	773	317	3,030	3,200	852	6,300	706	1,630	98
21	9,410	945	1,100	844	337	1,500	1,500	826	6,810	440	1,110	90
22	6,030	871	1,220	865	355	1,270	1,780	784	4,900	384	969	87
23	3,610	859	1,500	868	385	918	2,700	4,520	2,390	250	1,070	94
24	3,240	851	1,440	902	399	687	6,320	5,190	1,510	189	901	244
25	2,610	852	1,120	1,080	427	584	6,910	11,200	1,460	1,690	545	523
26	2,190	840	1,080	1,070	439	524	7,220	25,500	1,250	14,800	438	359
27	1,560	817	1,070	1,050	484	485	7,080	27,500	991	18,300	381	226
28	1,030	804	1,060	1,010	487	421	4,350	13,900	1,210	20,400	273	190
29	1,010	791	1,040	972	474	342	2,480	1,950	1,060	14,300	237	186
30	4,430	790	1,030	1,260	------	305	2,320	4,070	749	1,970	218	170
31	13,300	------	989	1,440	------	356	------	5,680	------	4,400	206	------
TOTAL	196,230	91,260	34,372	24,247	17,092	19,699	82,238	122,466	102,680	84,288	83,241	6,101
MEAN	6,330	3,042	1,109	782	589	635	2,741	3,951	3,423	2,719	2,685	203
MAX	14,100	19,500	1,760	1,440	1,330	3,310	9,010	27,500	13,000	20,400	10,100	523
MIN	1,010	790	663	537	272	221	309	513	749	144	206	87
AC-FT	389,200	181,000	68,180	48,090	33,900	39,070	163,100	242,900	203,700	167,200	165,100	12,100

CAL YR 1967: TOTAL 968,238 MEAN 2,653 MAX 22,500 MIN 13 AC-FT 1,920,000
WTR YR 1968: TOTAL 863,914 MEAN 2,360 MAX 27,500 MIN 87 AC-FT 1,714,000

7-1840. Lightning Creek near McCune, Kans.

Location.--Lat 37°16'54", long 95°01'56", on north line sec. 7, T. 32 S., R. 22 E., at downstream side of highway bridge, 5 miles south of McCune, Crawford County, 13 miles southeast of Parsons, and at mile 12.6.

Drainage area.--197 sq mi.

Records available.--October 1938 to September 1946, October 1959 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 818.10 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Mar. 10, 1945, staff or wire-weight gage and Mar. 10, 1945 to Sept. 30, 1946, graphic water-stage recorder all at present site and datum. Oct. 1, 1959 to May 26, 1960, graphic water-stage recorder 100 ft downstream at present datum. May 27, 1960 to Apr. 7, 1964, graphic water-stage recorder at present site and datum.

Average discharge.--17 years, 129 cfs (93,390 acre-ft per year).

Extremes.--Maximum discharge during year, 3,550 cfs June 2 (gage height, 15.83 ft); no flow at times.
1938-46, 1959-68: Maximum discharge, 23,000 cfs May 19, 1943 (gage height, 17.81 ft), from rating curve extended above 15,000 cfs; no flow at times in most years.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	2,100	8.6	18	281	10	51	13	991	66	8.0	0
2	4.8	403	12	17	339	9.9	44	11	2,990	78	5.1	0
3	3.9	207	36	15	127	9.1	45	13	1,780	24	3.7	0
4	3.9	268	59	14	73	8.0	41	14	168	13	2.7	0
5	4.5	121	53	12	54	7.4	36	13	79	8.3	2.2	0
6	4.8	67	41	11	42	6.9	33	10	55	5.9	1.6	0
7	628	41	34	9.3	35	6.4	26	15	41	4.3	1.2	0
8	232	41	29	7.9	30	6.2	22	10	34	3.9	.96	0
9	86	35	125	7.1	26	6.9	18	9.1	28	3.5	.72	0
10	41	31	199	7.2	24	9.5	16	7.9	25	2.7	.57	0
11	24	27	338	7.6	23	12	15	9.2	21	2.3	.64	0
12	15	25	230	8.2	20	15	14	12	17	1.8	.56	0
13	10	22	97	8.1	17	28	13	13	15	1.5	.45	0
14	7.5	19	58	7.7	15	54	13	57	12	1.2	.39	0
15	9.1	17	44	7.2	15	63	12	133	11	1.0	.42	0
16	48	15	37	7.1	14	76	11	55	11	.86	.42	0
17	39	13	36	7.4	15	59	10	86	11	.75	.36	0
18	23	12	49	9.5	14	44	11	36	9.9	1.1	.30	0
19	15	12	73	15	13	1,150	13	21	9.1	.86	.25	0
20	10	11	51	23	13	1,620	48	14	8.3	6.3	.17	0
21	7.9	11	44	28	13	401	64	10	7.3	15	.10	0
22	6.2	10	40	34	12	592	87	8.0	6.4	8.5	.08	0
23	5.8	9.6	33	36	11	275	119	20	5.6	5.3	.07	0
24	4.6	9.0	28	32	11	129	115	92	4.9	4.1	.06	0
25	3.7	8.9	26	26	11	85	58	1,130	6.6	3.2	.05	0
26	2.4	8.7	25	23	11	64	37	2,490	9.9	180	.02	0
27	1.4	8.0	23	19	12	50	27	1,690	8.5	343	0	.83
28	1.9	7.4	21	18	12	42	22	174	6.4	47	0	3.2
29	2.6	7.6	20	23	11	38	18	84	4.8	22	0	1.9
30	602	8.3	19	440	------	35	15	56	3.8	27	0	1.0
31	2,480	------	19	304	------	37	------	188	------	14	0	------
TOTAL	4,334.7	3,575.5	1,907.6	1,202.3	1,294	4,949.3	1,054	6,494.2	6,380.5	896.37	31.09	6.93
MEAN	140	119	61.5	38.8	44.6	160	35.1	209	213	28.9	1.00	.23
MAX	2,480	2,100	338	440	339	1,620	119	2,490	2,990	343	8.0	3.2
MIN	1.4	7.4	8.6	7.1	11	6.2	10	7.9	3.8	.75	0	0
AC-FT	8,600	7,090	3,780	2,380	2,570	9,820	2,090	12,880	12,660	1,780	62	14

CAL YR 1967: TOTAL 43,862.08 MEAN 120 MAX 3,090 MIN .09 AC-FT 87,000
WTR YR 1968: TOTAL 32,126.49 MEAN 87.8 MAX 2,990 MIN 0 AC-FT 63,720

PEAK DISCHARGE (BASE, 1,800 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-31	1700	14.65	2,710	5-27	0100	14.70	2,730
03-20	0200	13.01	2,150	6-02	1900	15.83	3,550

97° 96° 95° 40° 39° 38° 37°

8140 8156 8180 8842 8844 8855 8891 8891.2 8891.4 8182 8865 8891.6 8904 8566 8891.8 8880 8869 8870 8875 8892 8906 8930 8920 8925 8895 8890 8910 8570.5 8571 8791 8885 8780 8915 8924.9 8933 8776 8785 9119 9124.9 9150 9125 9115 9135 1794 1795 1796 9110 1797.3 1797.94 1800 1820 1822.5 9140 9165 9166 1824.5 1825 1804 1805 1657 9170 1465.7 1831 1830 9175 1469.9 1470.5 1470.6 1470.7 1659 1670 1675 1680 1685 1660 1832 1698 1665 1476 1698 1700 1700.6 1700.5 1705 1707 1835 1840 1478 1465 1720

Big Blue River
Little Blue River
MISSOURI RIVER
Stranger Creek
Delaware River
ARKANSAS RIVER
Wakarusa River
Cottonwood River
Marais des Cygnes River
Neosho River
Verdigris River
Caney River
Hill Creek
Walnut River

ions, 1968 water year.

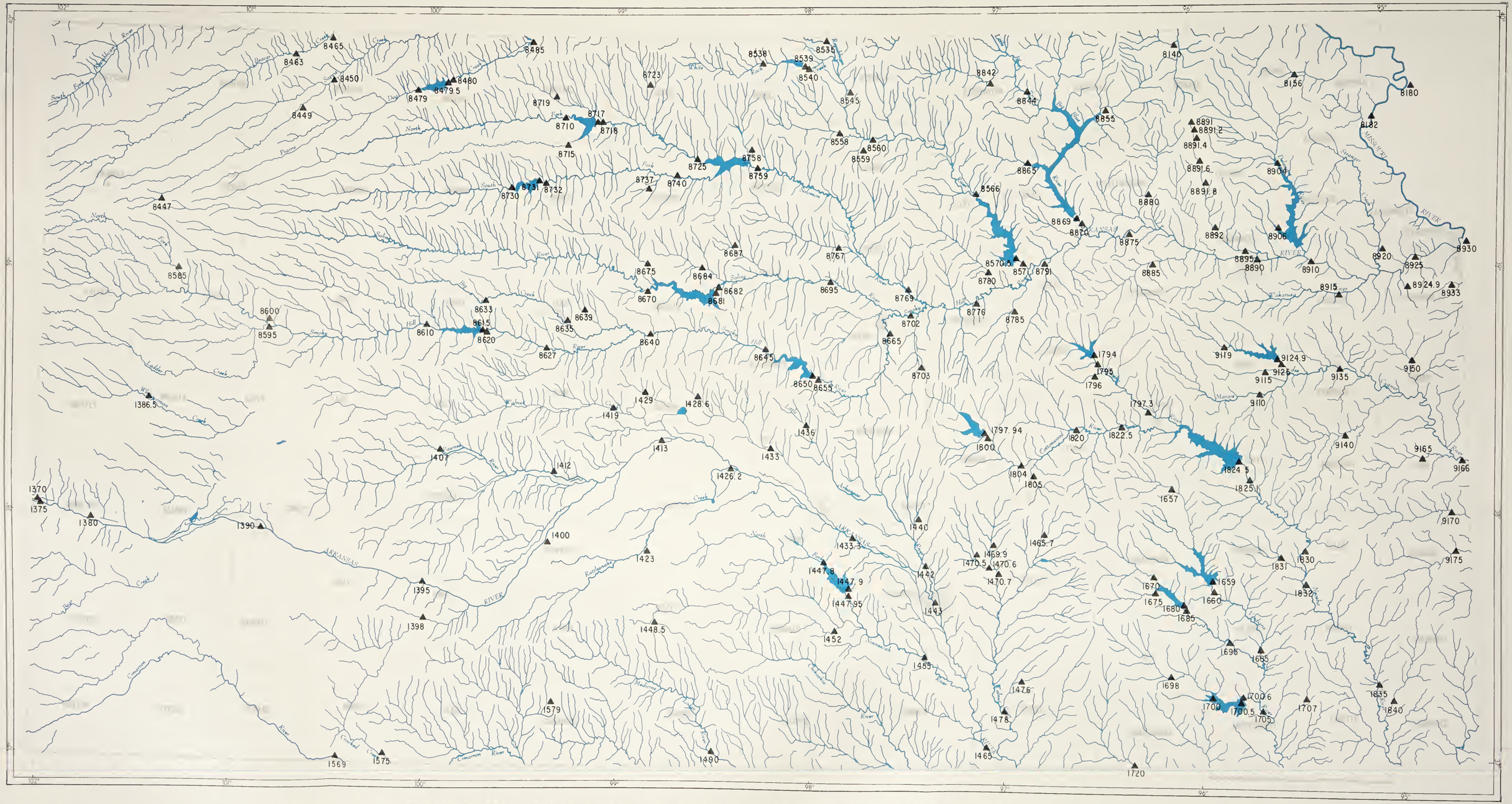

Figure 1.--Map of Kansas showing location of complete record stations, 1968 water year.

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or flood-flow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations.

Low-flow partial-record stations

Measurements of stream flow in the area covered by this report made at low-flow, partial-record stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will give a picture of the low-flow potentiality of stream. The column headed "Period of Record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations during water year 1968

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Nemaha River basin				
6-8139.00	South Fork Nemaha River near Seneca, Kans.	On south line sec. 25, T. 1 S., R. 12 E., at bridge on county highway, 7 miles northeast of Seneca.	a222	1960-68	10-30-67 3-11-68	9.42 8.20
6-8153.00	Walnut Creek at Reserve, Kans.	On south line sec. 7, T. 1 S., R. 17 E., at bridge on U.S. Highway 73, ½ mile east of Reserve.	a111	1954-68	10-30-67 3-11-68	15.0 9.54
		Wolf River basin				
6-8158.00	Wolf River at Leona, Kans.	On west line sec. 20, T. 3 S., R. 19 E., at bridge on county highway, ½ mile south of Leona. Published as "Wolf Creek" 1957-60.	a160	1960-68	10-30-67 3-11-68	32.0 15.1
		Kansas River basin				
6-8449.60	Middle Fork Sappa Creek near Achilles, Kans.	On south line sec. 34, T. 4 S., R. 32 W., at culvert on county highway, and 8 miles southwest of Achilles.	a319	1962-68	10-30-67 3-12-68	0 0
6-8454.00	South Fork Beaver Creek near Edson, Kans.	On west line sec. 15, T. 6 S., R. 38 W., at county highway bridge, 13 miles north of Edson.	a513	1954-68	10-30-67 3-12-68	.40 .54
6-8459.50	Little Beaver Creek at Atwood, Kans.	On south line sec. 13, T. 3 S., R. 35 W., at bridge on U.S. Highway 36, 9 miles west of Atwood.	a479	1960-68	10-30-67 3-12-68	.73 1.60
6-8478.00	Prairie Dog Creek near Dresden, Kans.	On west line sec. 36, T. 4 S., R. 28 W., at bridge, 2 miles north of Dresden.	a347	1954-68	10-30-67 3-12-68	b.1 1.01
6-8580.00	Rose Creek near Wallace, Kans.	NE¼SE¼ sec. 34, T. 13 S., R. 39 W., at downstream side of highway bridge, 2½ miles southwest of Wallace.	28.5	1946-53 1955-68	10-30-67 3-12-68	b.1 2.03
6-8590.00	Ladder Creek near Leoti, Kans.	On west line sec. 13, T. 17 S., R. 37 W., at bridge on State Highway 25, 7 miles north of Leoti.	a701	1960-68	10-30-67 3-12-68	0 0
*6-8605.00	Hackberry Creek near Gove, Kans.	SW¼NE¼ sec. 1, T. 13 S., R. 29 W., near right bank at downstream side of bridge on State Highway 23, ½ mile south of Gove.	426	1946-53 1954-68	10-31-67 3-13-68	.08 .17
6-8607.00	Hackberry Creek near Quinter, Kans.	On west line sec. 20, T. 13 S., R. 26 W., at bridge 11½ miles south of Quinter.	a544	1955-68	10-31-67 3-13-68	0 0
6-8666.00	Saline River near Grinnell, Kans.	On west line sec. 21, T. 10 S., R. 30 W., at bridge on county highway, 4 miles northwest of Grinnell.	a232	1960-68	10-30-67 3-13-68	b.05 .04
*6-8699.50	Mulberry Creek near Salina, Kans.	SW¼SW¼ sec. 9, T. 14 S., R. 3 W., at left downstream pier of bridge on county highway, 2 miles downstream from Spring Creek, 2¼ miles west of Salina and 9 miles upstream from mouth.	a250	1961-68	10-31-67 3-12-68	2.60 3.84

* Also a crest-stage station.
a Approximately.
b Estimated.

Discharge measurements made at low-flow partial-record stations during water year 1968--continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Kansas River basin--continued				
6-8704.00	Gypsum Creek near Kipp, Kans.	On west line sec. 3, T. 15 S., R. 1 W., at bridge 1½ miles southeast of Kipp.	a250	1954-68	10-31-67 3-12-68	32.6 18.0
6-8707.00	North Fork Solomon River near Hoxie, Kans.	On west line sec. 27, T. 6 S., R. 28 W., at bridge on State Highway 23, 11 miles north of Hoxie.	a227	1960-68	10-30-67 3-12-68	0 0
6-8712.00	Bow Creek near Lenora, Kans.	On west line sec. 32, T. 6 S., R. 24 W., at bridge on county highway, 9 miles southwest of Lenora.	a165	1960-68	10-31-67 3-12-68	0 0
6-8720.00	Deer Creek at Kirwin, Kans.	NW¼ sec. 27, T. 4 S., R. 16 W., at bridge ½ mile north of Kirwin.	a309	1955-68	11-01-67 3-13-68	.21 2.42
6-8724.00	Beaver Creek near Smith Center, Kans.	On south line sec. 36, T. 3 S., R. 14 W., at bridge 4½ miles southwest of Smith Center.	a165	1954-68	11-01-67 3-13-68	.26 .75
6-8727.00	Oak Creek near Cawker City, Kans.	On south line sec. 19, T. 6 S., R. 10 W., at bridge on U.S. Highway 24, 2 miles west of Cawker City.	a194	1955-68	11-01-67 3-13-68	.05 1.13
6-8729.00	South Fork Solomon River near Hoxie, Kans.	On west line sec. 3, T. 9 S., R. 28 W., at bridge on State Highway 23, 3½ miles south of Hoxie. Prior to Nov. 14, 1955, at site 11 miles downstream (drainage area, 430 sq mi approximately).	a395	1954-68	10-30-67 3-12-68	0 .65
6-8764.00	Pipe Creek near Minneapolis, Kans.	On west line sec. 9, T. 10 S., R. 3 W., at bridge on U.S. Highway 81, 5¼ miles northeast of Minneapolis.	a135	1954-68	10-31-67 3-12-68	3.19 2.65
6-8778.00	Chapman Creek near Longford, Kans.	On north line sec. 20, T. 10 S., R. 2 E., at county bridge 5 miles east of Longford.	a170	1958-68	10-31-67 3-12-68	13.4 7.94
*6-8849.00	Robidoux Creek at Beattie, Kans.	SW¼NE¼ sec. 20, T. 2 S., R. 9 E., at downstream side of county highway bridge, 0.8 mile northwest of Beattie.	a40	1964-68	10-30-67 3-12-68	.50 .48
6-8887.00	Cross Creek near Rossville, Kans.	NW¼ sec. 15, T. 10 S., R. 13 E., at bridge on county highway, 3 miles north of Rossville.	a148	1960-68	11-01-67 3-13-68	22.8 12.7
6-8900.50	Delaware River near Horton, Kans.	On south line sec. 30, T. 4 S., R. 16 E., at bridge on State Highway 20, 7 miles west of Horton.	79	1968	11-27-67 3-11-68	11.3 9.67
6-8912.00	Wakarusa River at Wakarusa, Kans.	On west line sec. 30, T. 13 S., R. 16 E., at bridge on U.S. Highway 75, 0.5 mile east of Wakarusa.	a135	1960-68	11-27-67 3-13-68	14.7 9.66
6-8918.00	Stranger Creek near Cummings, Kans.	NE¼ sec. 9, T. 7 S., R. 20 E., at bridge on county highway 3½ miles east of Cummings.	a177	1960-68	10-30-67 3-11-68	25.6 16.1
		Osage River basin				
6-9109.00	Marais des Cygnes River near Reading, Kans.	On north line sec. 1, T. 18 S., R. 13 E., at bridge on State Highway 70, 2 miles east of Reading.	a215	1954-68	10-30-67 3-11-68	42.4 15.4
		Arkansas River basin				
7-1408.00	Pawnee River near Ness City, Kans.	SW¼ sec. 29, T. 20 S., R. 23 W., just below dam 12 miles south of Ness City.	923	1954-68	10-31-67 3-11-68	.11 .22
7-1409.00	Buckner Creek near Jetmore, Kans.	On west line sec. 11, T. 23 S., R. 25 W., at bridge 8½ miles west of Jetmore.	261	1954-68	10-31-67 3-11-68	.45 .84
7-1411.00	Sawlog Creek near Wright, Kans.	NW¼ sec. 7, T. 25 S., R. 23 W., at bridge on U.S. Highway 283, 8 miles north of Wright.	160	1954-68	10-31-67 3-11-68	0 .09
7-1417.00	Walnut Creek near Ness City, Kans.	On west line sec. 13, T. 19 S., R. 23 W., at bridge 5 miles southeast of Ness City.	749	1954-68	10-31-67 3-11-68	.70 .94
7-1422.00	Rattlesnake Creek near Haviland, Kans.	On west line sec. 10, T. 27 S., R. 17 W., at county bridge 4 miles west and 7 miles north of Haviland.	363	1967-68	5-19-67 10-31-67 3-13-68	c0 0 0

* Also a crest-stage station.

a Approximately.

c Not previously published.

Discharge measurements made at low-flow partial-record stations during water year 1968--continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Arkansas River basin--continued				
7-1426.00	Rattlesnake Creek near Hudson, Kans.	On north line sec. 12, T. 22 S., R. 11 W., at bridge 10½ miles northeast of Hudson.	1,096	1954-68	11-01-67 3-14-68	0.93 32.9
7-1436.60	Sun Creek near Buhler, Kans.	On north line sec. 14, T. 22 S., R. 3 W., at bridge on county road, 8.2 miles east of Buhler. Published as "Turkey Creek" 1960-62.	180	1960-68	11-28-67 3-13-68	6.39 4.69
7-1439.00	Little Arkansas River near Halstead, Kans.	On north line sec. 1, T. 24 S., R. 2 W., at county bridge ½ mile east of Halstead. Prior to Nov. 10, 1959 at site 4.7 miles upstream (drainage area, 760 sq mi).	812	1954-68	11-28-67 3-13-68	26.6 21.1
7-1445.00	Cowskin Creek near Schulte, Kans.	NW¼ sec. 9, T. 28 S., R. 1 W., at bridge on State Highway 42, 2 miles northeast of Schulte.	125	1960-68	11-29-67 3-13-68	4.70 5.33
7-1445.90	North Fork Ninnescah River near Sylvia, Kans.	On west line sec. 27, T. 24 S., R. 10 W., at county bridge, 1 mile south of Sylvia.	208	1968	11-01-67 3-14-68	11.0 13.2
7-1450.00	South Fork Ninnescah River near Pratt, Kans.	On south line sec. 33, T. 27 S., R. 12 W., at bridge on U.S. Highway 54, 4 miles east of Pratt.	204	1956-68	10-31-67 3-13-68	21.0 17.6
7-1466.00	East Branch Walnut River near El Dorado, Kans.	NE¼ sec. 17, T. 25 S., R. 6 E., at bridge 5 miles northeast of El Dorado.	151	1955-68	11-28-67 3-12-68	16.8 7.69
7-1468.00	West Branch Walnut River near El Dorado, Kans.	On south line sec. 14, T. 25 S., R. 5 E., at bridge 3½ miles north of El Dorado.	62	1955-68	11-28-67 3-12-68	5.85 3.66
7-1470.00	Whitewater River near Potwin, Kans.	On north line sec. 24, T. 25 S., R. 3 E., at bridge 5 miles southwest of Potwin.	200	1954-68	11-28-67 3-12-68	8.44 5.95
7-1474.00	Little Walnut River near Gordon, Kans.	SE¼ sec. 19, T. 28 S., R. 5 E., at bridge 4 miles east of Gordon.	253	1954-68	3-13-68	13.8
*7-1481.00	Grouse Creek near Dexter, Kans.	NW¼NW¼ sec. 31, T. 32 S., R. 7 E., on right bank at downstream side of county highway bridge, 3.2 miles north of Dexter.	170	1960-68	3-08-68 7-23-68	16.8 2.21
7-1482.00	Mule Creek near Wilmore, Kans.	On south line sec. 3, T. 32 S., R. 16 W., at bridge on U.S. Highway 160, 10 miles southeast of Wilmore.	129	1954-68	10-31-67 3-13-68	6.0 8.57
7-1483.00	Salt Fork River near Aetna, Kans.	SW¼ sec. 21, T. 34 S., R. 15 W., at bridge on county highway, 1 mile south of Aetna.	591	1960-68	10-31-67 3-13-68	0 13.1
7-1486.00	Medicine Lodge River at Sun City, Kans.	SE¼ sec. 2, T. 31 S., R. 15 W., at bridge ½ mile south of Sun City.	335	1954-68	10-31-67 3-13-68	24.8 35.8
7-1489.00	Elm Creek at Medicine Lodge, Kans.	SE¼ sec. 12, T. 32 S., R. 12 W., at bridge on U.S. Highway 160 at Medicine Lodge.	167	1955-68	10-30-67 3-11-68	17.3 17.9
7-1496.00	Sandy Creek near Attica, Kans.	SW¼ sec. 30, T. 33 S., R. 9 W., at bridge on State Highway 14, 8½ miles southwest of Attica.	103	1960-68	10-30-67 3-11-68	2.07 3.32
7-1513.00	Chikaskia River at Spivey, Kans.	Center of sec. 14, T. 30 S., R. 8 W., at bridge on county highway, ½ mile south of Spivey.	315	1958-68	10-30-67 3-11-68	19.5 28.6
7-1516.50	Bluff Creek near Anthony, Kans.	On north line sec. 21, T. 33 S., R. 7 W., at county bridge, 3 miles west and 1 mile north of Anthony.	142	1967-68	5-18-67 10-30-67 3-11-68	c0 .18 4.32
7-1518.00	Bluff Creek near Caldwell, Kans.	On west line sec. 12, T. 35 S., R. 4 W., at bridge on county highway, 5 miles west of Caldwell.	399	1960-68	10-30-67 3-11-68	1.54 7.51
7-1558.00	Cimarron River near Hickok, Kans.	On west line sec. 25, T. 30 S., R. 36 W., at bridge 10¼ miles south of Hickok.	3,630	1955-68	11-01-67 3-12-68	0 0
7-1562.00	North Fork Cimarron River near Ulysses, Kans.	On west line sec. 5, T. 29 S., R. 37 W., at bridge on county highway, 2 miles southwest of Ulysses.	1,640	1960-68	11-01-67 3-12-68	0 .02

* Also a crest-stage station.
c Not previously published.

Discharge measurements made at low-flow partial-record stations during water year 1968--continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Arkansas River basin--continued				
7-1567.50	Cimarron River near Liberal, Kans.	NW¼ sec. 28, T. 32 S., R. 33 W., at bridge on U.S. Highway 83, 13 miles north of Liberal. Prior to June 23, 1943 at site 9 miles downstream.	7,452	1895-96+ 1938-42+ 1942,1943 1946,1948 1960-68	11-01-67 3-12-68	2.97 3.45
7-1572.00	Crooked Creek near Fowler, Kans.	On north line sec. 3, T. 30 S., R. 26 W., at bridge 6½ miles north of Fowler.	524	1954-68	10-31-67 3-11-68	.06 0
7-1576.00	Sand Creek near Englewood, Kans.	On west line sec. 7, T. 34 S., R. 24 W., at bridge on U.S. Highway 283, 3 miles north of Englewood.	278	1954-68	10-31-67 3-11-68	0 0
7-1578.00	Bluff Creek near Protection, Kans.	On north line sec. 9, T. 33 S., R. 20 W., at bridge on U.S. Highway 160, 1 mile west of Protection.	303	1954-68	10-31-67 3-13-68	0 .34
7-1658.00	Willow Creek near Quincy, Kans.	On north line sec. 12, T. 25 S., R. 12 E., at bridge on county highway, 3 miles northwest of Quincy.	120	1960-68	11-28-67 3-12-68	11 4.64
7-1658.50	Walnut Creek at Neal, Kans.	S½ sec. 34, T. 25 S., R. 12 E., at bridge on county highway, ½ mile south of Neal.	130	1960-68	11-28-67 3-12-68	10.8 7.23
7-1668.00	Spring Creek near Eureka, Kans.	On west line sec. 17, T. 26 S., R. 10 E., at bridge 4 miles southwest of Eureka.	69	1955-68	11-28-67 3-12-68	20.2 3.19
7-1733.00	Middle Caney Creek at Sedan, Kans.	On west line sec. 2, T. 34 S., R. 11 E., at bridge on U.S. Highway 166, ½ mile south of Sedan.	120	1961-68	10-30-67	2.69
7-1797.00	Rock Creek near Dunlap, Kans.	On north line sec. 1, T. 17 S., R. 9 E., at bridge on county highway, 2 miles north of Dunlap.	120	1960-68	11-28-67 3-13-68	20.6 10.8
7-1798.00	South Cottonwood River near Canada, Kans.	On west line sec. 8, T. 20 S., R. 3 E., at bridge on county highway, 1.4 miles south of Canada.	110	1961-68	10-31-67 3-12-68	13.6 8.36
7-1801.00	Clear Creek at Marion, Kans.	Center of sec. 29, T. 19 S., R. 4 E., at bridge 1 mile north of Marion.	78	1954-68	10-31-67 3-12-68	14.5 7.70
7-1818.00	Diamond Creek near Elmdale, Kans.	On north line sec. 4, T. 19 S., R. 7 E., at bridge on county highway, 4 miles northwest of Elmdale.	134	1960-68	11-01-67 3-13-68	44.7 12.2
7-1822.00	South Fork Cottonwood River near Cottonwood Falls, Kans.	N½ sec. 27, T. 20 S., R. 8 E., at bridge on county highway, 5.5 miles south of Cottonwood Falls.	a190	1954-68	11-01-67 3-13-68	78.8 19.5
7-1827.00	Big Creek near Leroy, Kans.	NW¼ sec. 36, T. 22 S., R. 15 E., at bridge 4 miles northwest of Leroy.	128	1954-68	11-27-67 3-11-68	10.0 4.15
7-1829.00	Deer Creek near Iola, Kans.	On west line sec. 11, T. 24 S., R. 18 E., at bridge on U.S. Highways 59 and 169, 3½ miles north of Iola.	105	1954-68	11-27-67 3-11-68	15.3 5.61
7-1833.00	Big Creek near Chanute, Kans.	Center sec. 22, T. 27 S., R. 19 E., at bridge on U.S. Highway 59, 7½ miles east of Chanute.	95	1960-68	11-27-67 3-11-68	11.2 5.13
7-1834.00	Flat Rock Creek near St. Paul, Kans.	On north line sec. 8, T. 29 S., R. 21 E., at bridge on county highway, 2 miles northeast of St. Paul.	139	1960-68	11-27-67 3-11-68	8.49 6.25
*7-1845.00	Labette Creek near Oswego, Kans.	NW¼NW¼ sec. 11, T. 33 S., R. 20 E., at downstream side of bridge on State Highway 96, 2.0 miles above St. Louis-San Francisco Railway bridge, 5 miles north of Oswego and at mile 18.8.	211	1939-45+ 1954-68	11-28-67 3-11-68	10.3 16.2

* Also a crest-stage station.
a Approximately.
\+ Operated as a continuous-record gaging station.
Note.--Most discharge measurements furnished by Water Resources Division of the Kansas State Board of Agriculture.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Nemaha River basin					
6-8137.00	Tennessee Creek tributary near Seneca, Kans.	SE¼SW¼ sec. 2, T. 3 S., R. 12 E., above culvert on county highway, 1.8 miles southeast of Seneca.	0.90	1957-68	7-30-68	17.46	a260
		Wolf River basin					
6-8157.00	Buttermilk Creek near Willis, Kans.	SW¼SW¼ sec. 30, T. 3 S., R. 18 E., at downstream side of county highway bridge, 3.6 miles northeast of Willis. Published as "South Branch Wolf Creek tributary" 1957-60, as "South Fork Wolf River tributary", 1961.	3.74	1957-68	8-09-68	18.76	4,000
		Kansas River basin					
6-8448.00	South Fork Sappa Creek tributary near Goodland, Kans.	NW¼NW¼ sec. 36, T. 8 S., R. 39 W., below culvert on county highway, 4.5 miles southeast of Goodland.	4.98	1957-68	6-16-68	12.98	480
6-8451.00	Long Branch Draw near Norcatur, Kans.	SW¼SW¼ sec. 6, T. 2 S., R. 25 W., on downstream side of county highway bridge, 4.7 miles north of Norcatur.	31.7	1957-68	7-06-68	b9.1	42
6-8460.00	Beaver Creek at Ludell, Kans.	NW¼SW¼ sec. 30, T. 2 S., R. 32 W., at downstream side of bridge on county highway, 120 ft downstream from Chicago, Burlington, and Quincy Railway Co., bridge, 0.5 mile south of Ludell and 9.6 miles downstream from Little Beaver Creek. Prior to June 30, 1932 at site 120 ft upstream and at datum 1.7 ft higher.	1,460	1930-32‡ 1946-53‡ 1961-68	7-28-68	8.88	540
6-8462.00	Beaver Creek tributary near Ludell, Kans.	SE¼SE¼ sec. 2, T. 3 S., R. 32 W., at downstream end of culvert on U.S. Highway 36, 5.4 miles southeast of Ludell.	10.2	1957-68	8-29-68	13.79	450
6-8476.00	Prairie Dog Creek tributary at Colby, Kans.	NE¼SW¼ sec. 6, T. 8 S., R. 33 W., at upstream end of ford on West Ash Street in Colby.	7.53	1957-68	6-24-68	17.75	680
6-8482.00	Prairie Dog Creek tributary near Norton, Kans.	NW¼NW¼ sec. 26, T. 2 S., R. 23 W., at downstream side of bridge on U.S. Highway 283, 1.6 miles north of Norton.	1.02	1957-68	8-10-68	12.16	150
6-8561.00	West Salt Creek near Talmo, Kans.	NW¼NW¼ sec. 36, T. 4 S., R. 3 W., at downstream side of county highway bridge, 2.5 miles southwest of Talmo.	42.0	1957-68	8-28-68	15.78	500
6-8568.00	Moll Creek near Green, Kans.	NE¼NW¼ sec. 8, T. 8 S., R. 4 E., at downstream side of bridge on U.S. Highway 24, 3.3 miles southwest of Green. Prior to July 15, 1965 at site 60 ft upstream at same datum.	3.60	1957-68	7-24-68	16.80	940
6-8587.00	North Fork Smoky Hill River tributary near Winona, Kans.	NE¼NW¼ sec. 11, T. 12 S., R. 36 W., 600 ft downstream from culvert on U.S. Highway 40, 3 miles southwest of Winona. Prior to Apr. 15, 1958 at site 700 ft upstream and datum 11.00 ft higher. Apr. 15, 1958 to July 31, 1963 at culvert on U.S. Highway 40 at datum 10.0 ft higher. Records for 1957-61 discredited.	1.13	1957-68	6-17-68	11.74	440

‡ Operated as a continuous-record gaging station.
a Backwater.
b From floodmark.

Annual maximum discharge at crest-stage partial-record stations--continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Kansas River basin--continued					
6-8603.00	South Branch Hackberry Creek near Orion, Kans.	SW¼NW¼ sec. 7, T. 13 S., R. 30 W., at downstream side of county highway bridge, 1.5 miles south of Orion.	49.6	1957-68	7-25-68	15.86	600
*6-8605.00	Hackberry Creek near Gove, Kans.	SW¼NE¼ sec. 1, T. 13 S., R. 29 W., near right bank at downstream side of bridge on State Highway 23, 0.5 mile south of Gove. (See previous table.)	426	1948-53‡ 1960-68	8-10-68	6.79	640
6-8634.00	Big Creek tributary near Ogallah, Kans.	NW¼SW¼ sec. 11, T. 13 S., R. 22 W., at downstream side of bridge on State Highway 147, 4.0 miles southwest of Ogallah.	4.81	1957-68	8-10-68	13.88	1,200
6-8637.00	Big Creek tributary near Hays, Kans.	SE¼NE¼ sec. 7, T. 14 S., R. 17 W., at downstream side of culvert on old U.S. Highway 40 at Toulon, 4.7 miles southeast of Hays.	6.19	1957-68	9-23-68	10.49	17
6-8643.00	Smoky Hill River tributary at Dorrance, Kans.	NW¼SE¼ sec. 12, T. 14 S., R. 12 W., at downstream end of culvert on old U.S. Highway 40, at Dorrance.	5.39	1957-68	1968	c	0
6-8647.00	Spring Creek near Kanopolis, Kans.	NW¼NW¼ sec. 24, T. 15 S., R. 8 W., at downstream end of culvert on old U.S. Highway 40, 2.2 miles northwest of Kanopolis.	9.84	1957-68	9-19-67 9-23-68	16.29 12.77	d3,000 430
6-8668.00	Saline River tributary at Collyer, Kans.	SW¼SW¼ sec. 32, T. 11 S., R. 25 W., at downstream side of county highway bridge, 0.7 mile northwest of Collyer.	3.13	1957-68	6-17-68	12.95	320
6-8678.00	Cedar Creek tributary near Bunker Hill, Kans.	NW¼SE¼ sec. 12, T. 13 S., R. 13 W., above culvert on county highway, 4.5 miles northwest of Bunker Hill.	.99	1957-68	9-23-68	10.76	150
6-8683.00	Coon Creek tributary near Luray, Kans.	NW¼NE¼ sec. 19, T. 10 S., R. 12 W., at downstream side of county highway bridge, 4.4 miles northwest of Luray.	6.53	1957-68	8-10-68	b14.7	150
6-8689.00	Elkhorn Creek tributary near Lincoln, Kans.	SW¼SW¼ sec. 30, T. 12 S., R. 7 W., at downstream side of bridge on State Highway 14, 4.6 miles south of Lincoln.	2.64	1957-68	8-28-68	12.17	150
*6-8699.50	Mulberry Creek near Salina, Kans.	SW¼SW¼ sec. 9, T. 14 S., R. 3 W., at left downstream pier of bridge on county highway, 2 miles downstream from Spring Creek, 2¼ miles west of Salina and 9 miles upstream from mouth. (See previous table.)	250	1961-68	10-07-67	21.38	2,500
6-8721.00	Middle Cedar Creek at Kensington, Kans.	NE¼NE¼ sec. 32, T. 3 S., R. 15 W., at downstream side of bridge on old U.S. Highway 36, 0.5 mile south of Kensington.	58.9	1957-68	6-16-57 5-21-61 8-15-68	b29.1 20.48 25.00	d6,000 d1,300 2,600
6-8726.00	Oak Creek at Bellaire, Kans.	NW¼NW¼ sec. 15, T. 3 S., R. 12 W., at downstream side of bridge at Bellaire. Prior to Sept. 8, 1965 at same site at datum 2.18 ft lower.	4.75	1957-68	9-17-68	12.16	27
6-8733.00	Ash Creek tributary near Stockton, Kans.	SE¼SW¼ sec. 18, T. 7 S., R. 18 W., at upstream end of culvert on old U.S. Highway 24, 5.3 miles west of Stockton.	.89	1957-68	8-15-68	10.72	45

* Also a low-flow partial-record station.
‡ Operated as a continuous-record gaging station.
b From floodmark.
c Peak stage did not reach bottom of pipe.
d Not previously published.

Annual maximum discharge at crest-stage partial-record stations--continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Kansas River basin--continued					
6-8738.00	Kill Creek tributary near Bloomington, Kans.	NE¼SE¼ sec. 35, T. 7 S., R. 14 W., at upstream end of culvert on county highway, 4.8 miles southwest of Bloomington.	1.45	1957-68	6-09-68	14.27	300
6-8745.00	East Limestone Creek near Ionia, Kans.	NE¼NW¼ sec. 21, T. 4 S., R. 9 W., at downstream side of county highway bridge, 2.5 miles northeast of Ionia. Prior to Oct. 1, 1956, at same site and datum 6.2 ft higher.	25.6	1934-38‡ 1957-68	9-17-68	b10.5	150
6-8762.00	Middle Pipe Creek near Miltonvale, Kans.	NE¼NW¼ sec. 20, T. 8 S., R. 2 W., at downstream side of county highway bridge, 6.0 miles west of Miltonvale.	10.2	1957-68	9-04-68	15.50	400
6-8772.00	East Turkey Creek near Elmo, Kans.	SE¼SE¼ sec. 11, T. 16 S., R. 2 E., at downstream end of county highway bridge, 3.0 miles southeast of Elmo.	26.6	1957-68	10-07-67	19.82	1,800
6-8774.00	East Turkey Creek tributary near Elmo, Kans.	SW¼SW¼ sec. 2, T. 16 S., R. 2 E., at downstream end of bridge on State Highway 4, 2.3 miles east of Elmo.	2.48	1957-68	10-07-67	12.69	310
6-8775.00	Turkey Creek near Abilene, Kans.	W½ sec. 26, T. 14 S., R. 2 E., at downstream side of bridge at confluence of East and West Turkey Creeks, 8 miles south of Abilene.	143	1958-65‡ 1966-68	5-17-68	14.20	840
6-8792.00	Clark Creek near Junction City, Kans.	W½ sec. 14, T. 12 S., R. 6 E., at upstream side of bridge on State Highway 57, 5 miles southeast of Junction City, 7.5 miles upstream from Humbolt Creek.	200	1957-65‡ 1966-68	10-07-67	19.06	(+)
6-8797.00	Wildcat Creek at Riley, Kans.	SW¼SW¼ sec. 1, T. 9 S., R. 5 E., at downstream side of bridge on U.S. Highway 77 at Riley. Published as "Wild Cat Creek" 1957-64.	14.0	1957-68	6-28-65 4-01-67 10-07-67	23.03 21.17 14.60	d4,700 d3,000 630
6-8841.00	Mill Creek tributary near Haddam, Kans.	NE¼NE¼ sec. 10, T. 3 S., R. 1 E., above culvert on U.S. Highway 36, 3.0 miles south of Haddam.	1.64	1957-68	6-16-67 8-09-68	17.87 b23.3	d910 2,000
6-8843.00	Mill Creek tributary near Washington, Kans.	SW¼SW¼ sec. 5, T. 3 S., R. 4 E., at downstream end of culvert on U.S. Highway 36, 2.2 miles east of Washington.	3.20	1957-68	8-03-68	11.47	190
*6-8849.00	Robidoux Creek at Beattie, Kans.	SW¼NE¼ sec. 20, T. 2 S., R. 9 E., at downstream side of county highway bridge, 0.8 mile northwest of Beattie. (See previous table.)	40.0	1957-68	8-09-68	10.82	510
6-8872.00	Cedar Creek near Manhattan, Kans.	NE¼NE¼ sec. 19, T. 9 S., R. 8 E., at downstream side of county highway bridge, 5.5 miles north of Manhattan.	13.4	1957-68	7-23-68	18.33	2,700
6-8876.00	Kansas River tributary near Wamego, Kans.	SE¼SE¼ sec. 14, T. 10 S., R. 10 E., at upstream end of culvert on county highway, 3.0 miles southeast of Wamego.	.83	1951, 1957-68	8-10-68	16.77	880
6-8883.00	Rock Creek near Louisville, Kans.	On west line of SE¼ sec. 14, T. 9 S., R. 9 E., at downstream side of highway bridge, 4 miles west of Louisville.	128	1958-65‡ 1966-68	7-24-68	b35.5	20,000
6-8886.00	Dry Creek near Maple Hill, Kans.	SE¼NE¼ sec. 36, T. 11 S., R. 12 E., at downstream side of county highway bridge, 2.1 miles southeast of Maple Hill.	15.6	1957-68	8-02-68	21.93	7,300
6-8889.00	Blacksmith Creek tributary near Valencia, Kans.	SW¼NW¼ sec. 11, T. 12 S., R. 14 E., at downstream side of county highway bridge, 4.3 miles southeast of Valencia.	1.31	1957-68	7-26-68	12.14	570

* Also a low-flow partial-record station.
‡ Operated as a continuous-record gaging station.
\+ Discharge not determined.
b From floodmark.
d Not previously published.

Annual maximum discharge at crest-stage partial-record stations--continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Kansas River basin--continued					
6-8896.00	South Branch Shunganunga Creek near Pauline, Kans.	SE¼NE¼ sec. 26, T. 12 S., R. 15 E., at downstream side of county highway bridge, 1.7 miles northwest of Pauline.	3.84	1957-68	7-26-68	15.38	1,900
6-8903.00	Spring Creek near Wetmore, Kans.	NE¼NE¼ sec. 9, T. 5 S., R. 14 E., at upstream side of county highway bridge, 1.8 miles northwest of Wetmore.	21.0	1957-68	9-03-68	16.57	870
6-8905.60	Rock Creek near Meriden, Kans.	SE¼SW¼ sec. 1, T. 9 S., R. 16 E., at downstream side of stone arch bridge on country road, 7.0 miles northwest of Meriden.	1.89	1964-68	8-10-68	12.79	650
6-8907.00	Slough Creek tributary near Oskaloosa, Kans.	NE¼NW¼ sec. 9, T. 10 S., R. 19 E., above culvert on State Highway 16, 1.1 miles southeast of Oskaloosa.	.83	1957-68	7-31-68	13.81	240
6-8908.00	Slough Creek near Oskaloosa, Kans.	SW¼NE¼ sec. 31, T. 9 S., R. 19 E., at downstream side of bridge on State Highway 92, 1.3 miles northwest of Oskaloosa.	31.0	1957-68	10-07-67	13.42	3,200
6-8910.50	Stone House Creek at Williamstown, Kans.	On east line sec. 30, T. 11 S., R. 19 E., at downstream side of bridge on U.S. Highway 24, 0.1 mile north of Williamstown.	12.9	1963-68	7-31-68	11.08	2,700
		Osage River basin					
6-9123.00	Oragoon Creek tributary near Lyndon, Kans.	NW¼NW¼ sec. 6, T. 16 S., R. 16 E., at downstream side of bridge on U.S. Highway 75, 5.8 miles north of Lyndon.	3.76	1957-68	7-26-68	13.36	1,100
6-9136.00	Rock Creek near Ottawa, Kans.	SW¼SW¼ sec. 24, T. 17 S., R. 19 E., at downstream side of bridge on U.S. Highway 59, 3.7 miles south of Ottawa.	10.2	1957-68	5-25-68	15.85	400
6-9137.00	Middle Creek near Princeton, Kans.	SE¼SE¼ sec. 13, T. 18 S., R. 19 E., at downstream side of bridge on U.S. Highway 59, 1.3 miles southeast of Princeton.	52.0	1957-68	8-11-68	b17.4	2,300
6-9142.50	South Fork Pottawatomie Creek tributary near Garnett, Kans.	NW¼SE¼ sec. 7, T. 21 S., R. 20 E., above culvert on U.S. Highway 59, 3.1 miles south of Garnett.	.35	1963-68	4-03-68	11.45	170
6-9167.00	Middle Creek near Kincaid, Kans.	W½SW¼ sec. 11, T. 23 S., R. 20 E., at downstream side of county highway bridge, 2.5 miles southwest of Kincaid.	2.02	1957-68	8-17-68	12.70	45
6-9171.00	Marmaton River tributary near Bronson, Kans.	NW¼NW¼ sec. 3, T. 25 S., R. 21 E., above culvert of Missouri Pacific Railroad, below U.S. Highway 54, 1.5 miles northwest of Bronson.	.88	1957-68	5-25-68	13.17	180
6-9174.00	Marmaton River tributary near Fort Scott, Kans.	SW¼SW¼ sec. 9, T. 26 S., R. 24 E., at downstream side of county highway bridge, 6 miles southwest of Fort Scott.	2.80	1957-68	5-25-68	16.62	1,900
		Arkansas River basin					
7-1386.00	Whitewoman Creek tributary near Selkirk, Kans.	SW¼SW¼ sec. 34, T. 17 S., R. 39 W., at downstream side of county highway bridge, 5.6 miles northwest of Selkirk.	38.0 (7.59)	1957-68	6-25-68	b9.7	9
7-1388.00	Lion Creek tributary near Modoc, Kans.	NW¼NE¼ sec. 22, T. 18 S., R. 34 W., below culvert on State Highway 96, 1.2 miles southeast of Modoc.	7.00 (1.19)	1957-68	6-17-68	11.32	150
7-1389.00	Lion Creek near Modoc, Kans.	NW¼NW¼ sec. 19, T. 18 S., R. 33 W., above culvert on county highway, 3.5 miles southeast of Modoc. Prior to Aug. 15, 1963 below culvert at same site and datum.	41.4 (18.6)	1957-68	6-17-68	11.76	(+)

+ Discharge not determined.
b From floodmark.
Note.--Figures of drainage area in parenthesis show approximate contributing area included in total area.

Annual maximum discharge at crest-stage partial-record stations--continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Arkansas River basin--continued					
7-1397.00	Arkansas River tributary near Dodge City, Kans.	SE¼NE¼ sec. 11, T. 27 S., R. 25 W., at downstream side of culvert on U.S. Highway 283, 2.6 miles south of Dodge City. Prior to Mar. 1, 1959 above culvert 175 ft north of present site and at same datum.	8.66	1957-68	7-08-68	15.15	720
7-1403.00	Whitewoman Creek near Bellefont, Kans.	SW¼NW¼ sec. 33, T. 24 S., R. 21 W., at downstream side of county highway bridge, 3.5 miles northeast of Bellefont.	14.0	1957-68	7-28-68	10.24	29
7-1406.00	Pawnee River tributary near Kalvesta, Kans.	S½SW¼ sec. 12, T. 23 S., R. 28 W., at downstream side of bridge on U.S. Highway 156, 3.4 miles west of Kalvesta.	6.89	1957-68	6-17-68	10.06	70
7-1414.00	South Fork Walnut Creek tributary near Dighton, Kans.	SE¼SE¼ sec. 16, T. 18 S., R. 28 W., at culvert on State Highway 96, 2.8 miles east of Dighton. Prior to Sept. 5, 1958 at same site and datum 0.42 ft higher.	.81	1957-68	6-10-68	c	e1
7-1416.00	Long Branch Creek near Ness City, Kans.	NE¼NE¼ sec. 32, T. 18 S., R. 23 W., below bridge on State Highway 96, 1.2 miles east of Ness City.	28.0	1957-68	8-29-68	11.62	62
7-1418.00	Otter Creek near Rush Center, Kans.	NW¼NW¼ sec. 15, T. 19 S., R. 18 W., at downstream side of bridge on U.S. Highway 183, 4.3 miles south of Rush Center. Prior to Oct. 1, 1965 at site 100 ft downstream at present datum.	17.0	1957-68	4-22-68	b11.1	.1
7-1421.00	Rattlesnake Creek tributary near Mullinville, Kans.	SE¼SW¼ sec. 20, T. 28 S., R. 19 W., at downstream end of culvert on U.S. Highway 54, 2.9 miles east of Mullinville.	10.3	1957-68	10-06-67	12.86	920
7-1425.00	Spring Creek near Dillwyn, Kans.	SE¼SE¼ sec. 15, T. 24 S., R. 14 W., at downstream side of bridge on U.S. Highway 50, 2.2 miles southeast of Dillwyn.	14.3	1957-68	10-06-67	10.84	26
7-1427.00	Salt Creek near Partridge, Kans.	SW¼NW¼ sec. 22, T. 23 S., R. 7 W., at downstream side of county highway bridge, 5.0 miles north of Partridge.	85.0 (72.0)	1957-68	10-06-67	14.24	450
7-1431.00	Cheyenne Creek tributary near Claflin, Kans.	NE¼SE¼ sec. 28, T. 18 S., R. 11 W., at culvert on county highway, 4.7 miles south of Claflin.	1.48	1957-68	7-25-68	13.11	130
7-1432.00	Plum Creek near Holyrood, Kans.	SW¼SW¼ sec. 3, T. 17 S., R. 10 W., at downstream side of county highway bridge, 1.2 miles northwest of Holyrood.	19.0	1957-68	1968	c	0
7-1435.00	Little Arkansas River near Geneseo, Kans.	NW¼SW¼ sec. 27, T. 18 S., R. 7 W., at downstream side of county highway bridge, 5.5 miles southeast of Geneseo.	25.0	1957-68	8-06-67 7-25-68	21.38 19.81	d1,200 950
7-1449.00	South Fork Ninnescah River tributary near Pratt, Kans.	NE¼NE¼ sec. 27, T. 27 S., R. 13 W., at downstream end of culvert on county highway, 2.4 miles northeast of Pratt.	1.48	1957-68	7-28-68	b10.3	9
7-1453.00	Clear Creek near Garden Plain, Kans.	NE¼NW¼ sec. 33, T. 27 S., R. 3 W., at downstream side of bridge on U.S. Highway 54, 1.5 miles northeast of Garden Plain.	5.03	1957-68	7-28-68	13.34	630
7-1457.00	Slate Creek at Wellington, Kans.	W½SW¼ sec. 23, T. 32 S., R. 1 W., near right bank at downstream side of bridge on U.S. Highway 81, 1 mile south of Wellington. Discontinued Sept. 30, 1968.	154	1960-68	8-17-68	25.07	6,200

b From floodmark.
c Peak stage did not reach bottom of pipe.
d Not previously published.
e Estimated from data on inspection notes.
Note.--Figures of drainage area in parenthesis show approximate contributing area included in total area.

Annual maximum discharge at crest-stage partial-record stations--continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Arkansas River basin--continued					
7-1458.00	Avon Creek tributary near Dalton, Kans.	SW¼SE¼ sec. 11, T. 32 S., R. 1 E., upstream from culvert on U.S. Highway 160, 0.8 mile northwest of Dalton.	.41	1957-68	6-15-68	13.62	150
7-1467.00	West Branch Walnut Creek tributary near DeGraff, Kans.	NE¼NW¼ sec. 23, T. 24 S., R. 5 E., at downstream side of county highway bridge, 2.0 miles southeast of DeGraff.	11.0	1957-68	7-25-68	17.60	2,000
7-1470.20	Whitewater River tributary near Towanda, Kans.	NE¼NE¼ sec. 26, T. 25 S., R. 3 E., at culvert on county highway 5 miles northwest of Towanda.	.17	1963-68	6-05-65 9-22-68	16.32 13.80	f510 110
7-1472.00	Ory Creek tributary near Augusta, Kans.	S½SE¼ sec. 19, T. 27 S., R. 4 E., at downstream end of culvert on U.S. Highway 54, 2.8 miles west of Augusta. Published as "Indianola Creek tributary" 1957-63.	.90	1957-68	7-25-67 6-15-68	f10.48 10.44	d130 120
7-1479.90	Cedar Creek tributary near Cambridge, Kans.	On east line sec. 26, T. 31 S., R. 7 E., at downstream side of bridge on U.S. Highway 160, 0.5 mile upstream from Cedar Creek and 2.1 miles northeast of Cambridge. Published as "Grouse Creek tributary" 1961-63.	2.41	1961-68	6-15-68	13.06	1,500
*7-1481.00	Grouse Creek near Dexter, Kans.	NW¼NW¼ sec. 31, T. 32 S., R. 7 E., on right bank at downstream side of county highway bridge, 3.2 miles north of Dexter. (See previous table.)	170	1960-68	5-25-68	18.57	5,600
7-1487.00	Dog Creek near Deerhead, Kans.	NW¼NW¼ sec. 8, T. 32 S., R. 14 W., above culvert on U.S. Highway 160, 3.5 miles northeast of Dearhead.	5.31	1957-68	5-16-57 3-25-59 5-28-60 9-13-61 9-21-62 6-22-63 8-18-64 6-04-65 2-08-66 4-12-67 8-16-68	15.99 13.50 17.66 11.94 12.96 17.53 10.21 15.57 11.89 11.64 b20.2	d680 d270 d1,000 d110 d210 d1,000 d10 d600 d100 d73 1,700
7-1488.00	Medicine Lodge River tributary near Medicine Lodge, Kans.	N½NE¼ sec. 35, T. 31 S., R. 12 W., on right bank at downstream side of county highway bridge, 2.8 miles northwest of Medicine Lodge. Prior to June 23, 1960 at site ½ mile downstream and at datum 3.86 ft lower.	2.04	1957-68	8-16-68	13.89	230
7-1516.00	Rush Creek near Harper, Kans.	NE¼NE¼ sec. 21, T. 32 S., R. 7 W., at downstream side of county highway bridge, 3.5 miles southwest of Harper.	12.0	1957-68	4-02-68	13.44	540
7-1559.00	North Fork Cimarron River tributary near Elkhart, Kans.	NW¼SW¼ sec. 9, T. 33 S., R. 42 W., at downstream side of culvert on State Highway 27, 13.0 miles north of Elkhart.	75 (10.0)	1957-68	8-10-68	14.58	2,100
7-1560.00	North Fork Cimarron River tributary near Richfield, Kans.	SW¼NW¼ sec. 34, T. 31 S., R. 41 W., at downstream side of bridge on State Highway 27, 3.3 miles northeast of Richfield.	103 (58.9)	1957-68	6-25-68	17.97	2,600
7-1566.00	Cimarron River tributary near Moscow, Kans.	NW¼SW¼ sec. 20, T. 31 S., R. 34 W., at downstream side of county highway bridge, 8.8 miles northeast of Moscow.	13.0 (8.00)	1957-68	5-11-68	13.74	1,400

* Also a low-flow partial-record station.
b From floodmark.
d Not previously published.
f Revised.
Note.--Figures of drainage area in parenthesis show approximate contributing area included in total area.

Annual maximum discharge at crest-stage partial-record stations--continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Arkansas River basin--continued					
7-1567.00	Cimarron River tributary near Satanta, Kans.	NW¼NE¼ sec. 17, T. 32 S., R. 33 W., at downstream side of bridge on county highway, 12.0 miles southeast of Satanta.	2.41	1957-68	5-11-68	10.30	50
7-1571.00	Crooked Creek near Copeland, Kans.	SE¼SW¼ sec. 36, T. 28 S., R. 30 W., at downstream side of culvert on U.S. Highway 56, 4.4 miles northeast of Copeland. Prior to Sept. 15, 1960, at downstream side of bridge, just downstream of present site and at same datum.	44.0	1957-68	7-12-68	15.77	2,300
7-1574.00	Crooked Creek tributary at Meade, Kans.	NE¼NW¼ sec. 2, T. 32 S., R. 28 W., at downstream side of culvert on State Highway 23, 0.8 mile north of Meade.	6.57	1957-68	5-11-68	b9.3	5
7-1577.00	Kiger Creek near Ashland, Kans.	SW¼SE¼ sec. 3, T. 33 S., R. 24 W., above bridge on U.S. Highway 160, 8.2 miles west of Ashland.	34.0	1957-68	8-29-68	13.75	530
7-1662.00	Sandy Creek near Yates Center, Kans.	SE¼NE¼ sec. 26, T. 25 S., R. 14 E., at downstream side of bridge on U.S. Highway 54, 6.0 miles southwest of Yates Center.	6.80	1957-68	7-25-68	19.11	2,500
7-1667.00	Burnt Creek at Reece, Kans.	SW¼NW¼ sec. 8, T. 26 S., R. 9 E., at downstream side of county highway bridge at Reece.	8.85	1957-68	6-14-68	12.44	490
7-1692.00	Salt Creek near Severy, Kans.	NW¼NW¼ sec. 18, T. 28 S., R. 11 E., at downstream side of bridge on State Highway 99, 1.5 miles west of Severy.	7.59	1957-68	10-31-67	14.10	760
7-1697.00	Snake Creek near Howard, Kans.	NW¼SE¼ sec. 7, T. 29 S., R. 11 E., at downstream end of culvert on county highway, 5.0 miles northeast of Howard.	1.84	1957-68	5-25-68	14.30	420
7-1706.00	Cherry Creek near Cherryvale, Kans.	SE¼SW¼ sec. 33, T. 31 S., R. 17 E., at downstream side of bridge on U.S. Highway 169, 2.0 miles northeast of Cherryvale.	15.0	1957-68	10-31-67	14.02	1,200
7-1708.00	Mud Creek near Mound Valley, Kans.	NW¼NW¼ sec. 9, T. 33 S., R. 18 E., at downstream side of bridge on State Highway 96, 2.6 miles southwest of Mound Valley.	4.22	1957-68	4-03-68	14.32	600
7-1717.00	Spring Branch near Cedar Vale, Kans.	NW¼NE¼ sec. 7, T. 34 S., R. 9 E., at downstream side of bridge on U.S. Highway 166, 2.3 miles northeast of Cedar Vale. Published as "Spring Creek tributary near Cedar Vale, Kans" 1957-60, "Spring Creek near Cedar Vale" 1961-65.	3.10	1957-68	6-15-68	11.92	720
7-1718.00	Cedar Creek tributary near Hooser, Kans.	SW¼NE¼ sec. 7, T. 34 S., R. 8 E., above culvert on U.S. Highway 166, 3.9 miles southeast of Hooser.	.56	1957-68	4-03-68	12.79	250
7-1719.00	Grant Creek near Wauneta, Kans.	SE¼NE¼ sec. 10, T. 34 S., R. 9 E., at upstream side of county highway bridge, 1.1 miles southwest of Wauneta.	20.0	1957-68	6-15-68	15.08	2,200
7-1803.00	Spring Creek tributary near Florence, Kans.	W½NW¼ sec. 32, T. 21 S., R. 5 E., above culvert on U.S. Highway 77, 4.1 miles southeast of Florence.	.55	1957-68	6-15-68	12.77	130
7-1815.00	Middle Creek near Elmdale, Kans.	SE¼SW¼ sec. 13, T. 19 S., R. 6 E., at downstream side of county highway bridge, 4 miles northwest of Elmdale and at mile 8.2.	92.0	1939-50‡ 1960-68	10-07-67	17.22	8,200
7-1825.20	Rock Creek at Burlington, Kans.	NW¼NW¼ sec. 27, T. 21 S., R. 15 E., at downstream side of culvert on county highway at west city limit of Burlington. Prior to Mar. 18, 1960, at downstream side of county highway bridge (now removed) at the same site and datum.	8.27	1957-68	7-25-68	19.81	1,950

‡ Operated as a continuous-record gaging station.
b From floodmark.

Annual maximum discharge at crest-stage partial-record stations--continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Arkansas River basin--continued					
7-1826.00	North Big Creek near Burlington, Kans.	NW¼NW¼ sec. 27, T. 22 S., R. 15 E., at downstream side of county highway bridge, 5.9 miles southwest of Burlington.	46.0	1957-68	6-17-68	16.26	1,600
7-1838.00	Limestone Creek near Beulah, Kans.	NE¼SE¼ sec. 28, T. 30 S., R. 23 E., at downstream side of county highway bridge, 4.0 miles southwest of Beulah.	12.0	1957-68	5-25-68	15.77	1,200
*7-1845.00	Labette Creek near Oswego, Kans.	NW¼NW¼ sec. 11, T. 33 S., R. 20 E., at downstream side of bridge on U.S. Highway 96, 2.0 miles upstream from St. Louis - San Francisco Railway bridge, 5 miles northwest of Oswego and at mile 18.8. (See previous table.)	211	1939-45‡ 1961-68	10-31-67	15.38	5,800
7-1846.00	Fly Creek near Faulkner, Kans.	NW¼NW¼ sec. 7, T. 34 S., R. 23 E., at upstream side of county highway bridge, 3.8 miles east of Faulkner.	27.0	1957-68	5-16-57	23.60	d19,000
					7-25-58	22.36	d4,000
					11-17-58	21.58	d2,000
					10-13-59	23.60	d19,000
					5-08-61	23.05	d9,800
					5-20-64	23.65	d20,000
					4-02-65	21.18	d1,800
					6-06-66	19.05	d1,000
					6-28-67	22.56	d5,500
					7-02-68	22.90	8,000

* Also a low-flow partial-record station.
‡ Operated as a continuous-record gaging station.
d Not previously published.

68 water year.

● Crest-stage station ◒ Low-flow station

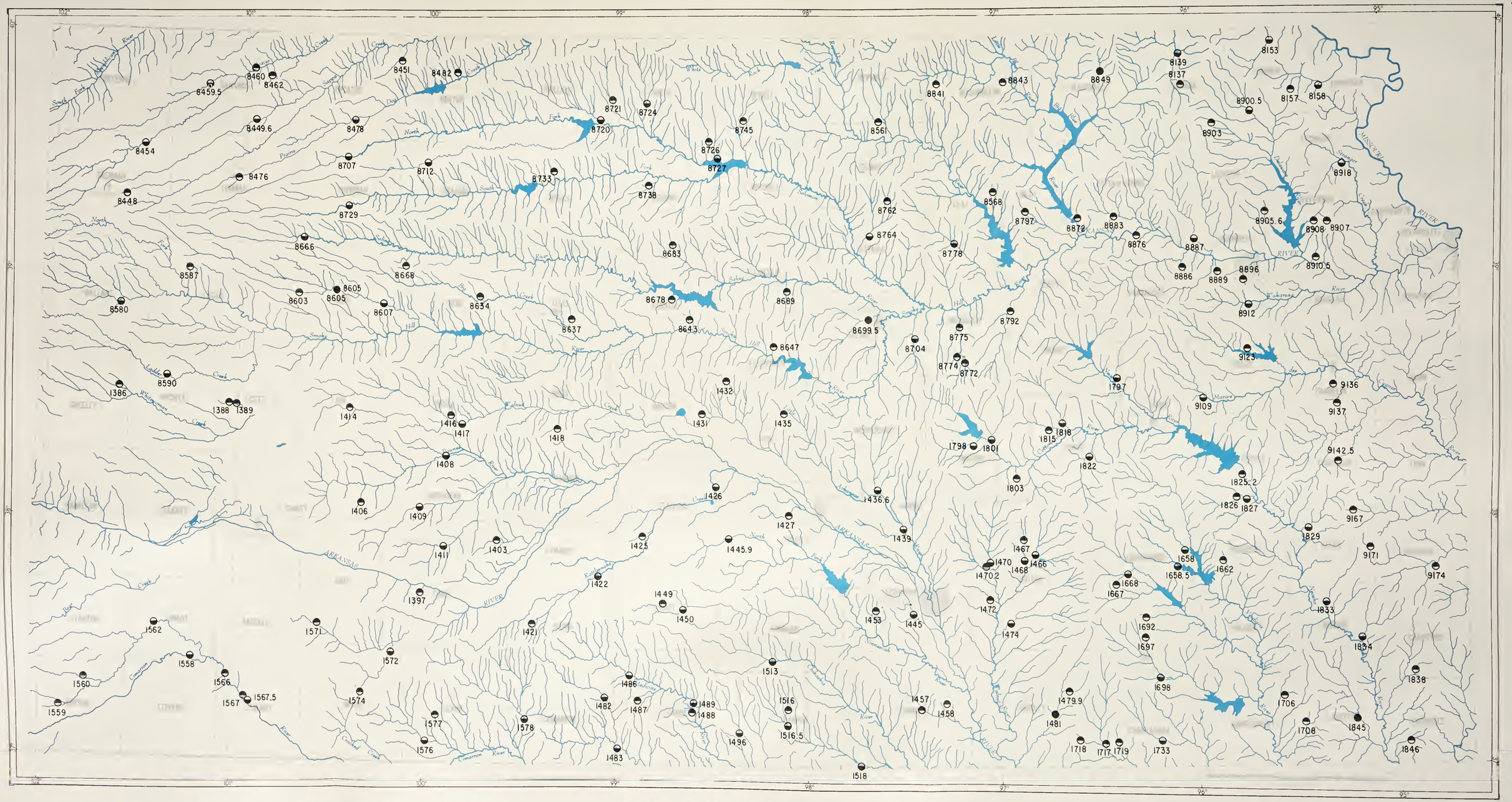

Figure 2.--Map of Kansas showing location of partial record stations, 1968 water year.

◓ Crest-stage station ◓ Low-flow station

On October 17, 1967 a cooperative seepage investigation was made on the mainstem and all flowing tributaries of the South Fork Solomon River between Webster and Osborne, Kansas. The investigation involved discharge measurements, ground-water observations, and chemical quality samples. Outflow from Webster Reservoir was cut off on September 13. Operation of Woodston Diversion Dam at river mile 63.9 was discontinued on September 12. Although precipitation was unusually high in September, little rain fell in early October and direct surface runoff had ceased prior to the investigation. Transpiration had slackened by October 12, but warm daytime temperatures, a lack of frost, and partial foliation on riparian vegetation probably contributed significantly to the evapotranspiration. The stream sections and observation wells for this investigation were generally the same for previous investigations either between Webster Dam and Woodston, Kansas, or between Webster Dam and Osborne, Kansas.

The river valley between Webster Dam and Osborne is about 40 miles long and about 1 to 2 miles wide. The river channel meanders gently with a channel length of about 64 miles.

Results of the ground-water observations and chemical analyses are filed in the Lawrence, Kansas, Survey office.

River mile	Stream and location	Discharge, in cubic feet per second		Remarks
		Main stream	Tributary	
90.0	South Fork Solomon River in SW¼SW¼ sec. 26, T. 7 S., R. 19 W., 300 ft downstream from spillway channel, 0.5 mile downstream from Webster Dam, and 8 miles southwest of Stockton.	0.01		USGS gaging station 6-8732
87.0	South Fork Solomon River in NW¼NW¼ sec 31, T. 7 S., R. 18 W., 1.6 miles upstream from Ash Creek, and 6 miles southwest of Stockton.	.05		
84.4	South Fork Solomon River in SW¼NW¼ sec. 33, T. 7 S., R. 18 W., 1 mile downstream from Ash Creek, and 4.3 miles southwest of Stockton.	.04		
82.3	Unnamed Spring in NW¼SW¼ sec. 21, T. 7 S., R. 18 W., 50 ft west of South Fork Solomon River, and 3.5 miles southwest of Stockton.		0.13	Spring discharge into bog.
81.7	South Fork Solomon River in SW¼NE¼ sec. 21, T. 7 S., R. 18 W., 0.8 mile upstream from Borin Creek, and 3 miles southwest of Stockton.	.27		Diversion from well field for municipal supply of Plainville and Stockton of 0.81 cfs between miles 76.0 84.4
78.0	South Fork Solomon River in NE¼NE¼ sec 23, T. 7 S., R. 18 W., alongside U.S. Highway 24, and 0.7 mile west of Stockton.	.12		
77.3	Dibble Creek in N½SW¼ sec. 24, T. 7 S., R. 18 W., at mouth, 0.1 mile downstream from sewer outfall, and 0.5 mile southwest of Stockton.		.24	Flow is effluent from Stockton sewage-disposal plant.
76.0	South Fork Solomon River in SW¼NE¼ sec. 25, T. 7 S., R. 18 W., 300 ft below bridge on U.S. Highway 183, and 1.4 miles south of Stockton.	.50		
74.0	South Fork Solomon River in NW¼NW¼ sec. 20, T. 7 S., R. 17 W., 1 mile upstream from Elm Creek, and 1.4 miles east of Stockton.	.73		
70.9	South Fork Solomon River in SE cor. sec. 21, T. 7 S., R. 17 W., 2.1 miles downstream from Elm Creek, and 3.4 miles southeast of Stockton.	.72		
68.3	South Fork Solomon River in SW¼NW¼ sec. 24, T. 7 S., R. 17 W., 50 ft downstream from highway bridge, and 4.3 miles southwest of Woodston.	.86		
65.9	South Fork Solomon River in SW¼NW¼ sec. 20, T. 7 S., R. 16 W., 400 ft downstream from Medicine Creek, and 2.5 miles southwest of Woodston.	1.28		
63.9	South Fork Solomon River in NE¼NW¼ sec 17, T. 7 S., R. 16 W., at diversion dam, and 1.6 miles southwest of Woodston.	1.58		
62.1	South Fork Solomon River in SE¼SE¼ sec. 16, T. 7 S., R. 16 W., 300 ft upstream from highway bridge, and 1 mile south of Woodston.	.45		
59.5	South Fork Solomon River in NW¼NW¼ sec. 13, T. 7 S., R. 16 W., 150 ft downstream from highway bridge, and 1.9 miles east of Woodston.	2.12		
57.5	South Fork Solomon River in SE¼NE¼ sec. 18, T. 7 S., R. 15 W., 50 ft upstream from highway bridge, and 3.9 miles southeast of Woodston.	4.22		
56.3	South Fork Solomon River in SE¼NE¼ sec. 17, T. 7 S., R. 15 W., 0.3 mile downstream from Lucky Creek, and 3.7 miles southwest of Alton.	4.53		
54.0	South Fork Solomon River in SE¼SW¼ sec. 10, T. 7 S., R. 15 W., 100 ft downstream from highway bridge, and 2.2 miles southwest of Alton.	5.88		

River mile	Stream and location	Discharge, in cubic feet per second		Remarks
		Main stream	Tributary	
52.1	Unnamed tributary in NW¼NE¼ sec 9, T. 7 S., R. 15 W., 10 ft downstream from highway bridge, and 2.8 miles west of Alton.		.29	
50.3	South Fork Solomon River in SW¼NW¼ sec. 11, T. 7 S., R. 15 W., 0.1 mile north of road corner, and 1.3 miles southwest of Alton.	6.62		
47.6	South Fork Solomon River in SW¼SW¼ sec. 12, T. 7 S., R. 15 W., 200 ft downstream from highway bridge, and 0.8 mile south of Alton.	7.45		
46.9	Crooked Creek in NW¼NE¼ sec. 12, T. 7 S., R. 15 W., 100 ft downstream from highway bridge, and 0.4 mile east of Alton.		.15	
45.0	South Fork Solomon River in SW¼SW¼ sec. 5, T. 7 S., R. 14 W., 150 ft downstream from destroyed highway bridge, and 1.8 miles east of Alton.	7.98		
43.4	Unnamed tributary in NE¼NW¼ sec 9, T. 7 S., R. 14 W., 300 ft downstream from highway bridge, and 3.2 miles east of Alton.		.19	
42.3	South Fork Solomon River in NE¼SE¼ sec. 9, T. 7 S., R. 14 W., 300 ft upstream from highway bridge, and 3.8 miles east of Alton.	9.52		
39.9	South Fork Solomon River in NW¼NW¼ sec. 12, T. 7 S., R. 14 W., 50 ft upstream from highway bridge, and 2.7 miles northwest of Bloomington.	12.02		
38.1	South Fork Solomon River in NE¼NE¼ sec. 13, T. 7 S., R. 14 W., 200 ft upstream from highway bridge, and 1.7 miles west of Bloomington	11.72		
36.1	Unnamed tributary in NE¼NE¼ sec 19, T. 7 S., R. 13 W., 0.3 mile west of county road, and 1.6 miles southwest of Bloomington.		.03	
35.9	South Fork Solomon River in SW¼SW¼ sec. 17 T. 7 S., R. 13 W., 0.1 mile north of road corner, and 1.7 miles southwest of Bloomington.	12.66		
34.4	South Fork Solomon River in SW¼SW¼ sec. 16, T. 7 S., R. 13 W., 50 ft downstream from highway bridge, and 0.8 mile south of Bloomington.	13.20		
30.0	South Fork Solomon River in SW¼SW¼ sec. 14, T. 7 S., R. 13 W., 0.1 mile east of road corner, and 2.9 miles west of Osborne.	15.58		
26.2	Osborne Sewage		.21	
26.1	South Fork Solomon River on west line sec. 20, T. 7 S., R. 12 W., at U.S. Highway 281 bridge, and 0.7 mile south of Osborne	16.32		Diversion from well field for municipal supply of Osborne .36 cfs.

On October 19, 1967 a cooperative seepage investigation was made on the mainstem and all flowing tributaries of Prairie Dog Creek between Norton Dam and Woodruff, Kansas. The investigation involved discharge measurements, ground-water observations and chemical-quality samples. Outflow from Norton Reservoir was shut off September 15, 1967. Although precipitation was high in September, little rain fell in early October and direct surface runoff had ceased prior to the investigation. Transpiration had slackened by October 8 with frost occurring October 10. The stream sections below Norton Reservoir and observation wells for this investigation were generally the same as for the previous investigations.

The river valley between Norton Dam and Woodruff is about 32 miles long and about 1 to 1½ miles wide. The river channel meanders extensively with a channel length of about 64 miles.

Results of the ground-water observations and chemical analyses are filed in the Lawrence, Kansas, Survey office.

Channel mile	Stream and location	Discharge, in cubic feet per second		Remarks
		Main stream	Tributary	
87.2	Prairie Dog Creek in SW¼NW¼ sec. 9, T. 3 S., R. 23 W., about 500 ft downstream from Norton Dam site, 2.5 miles southwest of Norton.	0.92		USGS gaging station 6-8480 Gage reads 1.23 ft.
85.3	Prairie Dog Creek in SE¼SE¼ sec. 4, T. 3 S., R. 23 W., 100 ft west of field road, 1,000 ft downstream from abandoned R.R. bridge, 1.3 miles southwest of Norton.	1.01		
83.4	Prairie Dog Creek in SW¼NW¼ sec. 2, T. 3 S., R. 23 W., 100 ft downstream from U.S. Highway 283 bridge, at south edge of Norton.	.96		
81.9	-----in SE¼SE¼ sec. 35, T. 2 S., R. 23 W., at outlet of sewage plant, 0.3 mile southeast of Norton.		0.39	Sewage effluent from city of Norton. Norton municipal supply from Norton Reservoir of 0.68 cfs.
80.2	Prairie Dog Creek in SE¼SE¼ sec. 36, T. 2 S., R. 23 W., 10 ft upstream from highway bridge, 2.0 miles east of Norton.	1.02		
78.5	Spring Creek in SE¼SE¼ sec. 25, T. 2 S., R. 23 W., 5 ft upstream from highway bridge, 2.2 miles east of Norton.		.19	
77.6	Spring Branch in SE¼SE¼ sec. 30, T. 2 S., R. 22 W., 50 ft downstream from highway bridge, 3.0 miles east of Norton.		.24	Diversion from well field for State Sanitorium of 0.23 cfs.
75.9	Prairie Dog Creek in SW¼SW¼ sec. 28, T. 2 S., R. 22 W., 100 ft downstream from highway K-67 bridge, 1,000 ft east of State Sanitorium, 4.2 miles east of Norton.	1.99		
71.3	Wildcat Creek in SW¼SW¼ sec. 26, T. 2 S., R. 22 W., near bridge on U.S. 363, 4.8 miles southwest of Almena, 6.2 miles east of Norton.		.05	
70.5	Prairie Dog Creek in NW¼NW¼ sec. 26, T. 2 S., R. 22 W., 75 ft downstream from highway bridge, 4.6 miles southwest of Almena, 6.3 miles east of Norton.	2.12		
70.3	Unnamed tributary in NW¼NW¼ sec. 26, T. 2 S., R. 22 W., 50 ft downstream from highway bridge, 4.4 miles southwest of Almena, 6.3 miles east of Norton.		.18	
67.1	Prairie Dog Creek in SE¼NW¼ sec 24, T. 2 S., R. 22 W., 50 ft downstream from highway bridge, 3.0 miles southwest of Almena.	3.24		
64.8	Prairie Dog Creek in SE¼NW¼ sec. 18, T. 2 S., R. 21 W., 10 ft downstream from highway bridge, 2.1 miles southwest of Almena.	3.66		
62.0	Prairie Dog Creek in SE¼SE¼ sec. 8, T. 2 S., R. 21 W., 50 ft downstream from highway bridge, in Almena.	4.02		Diversion from well field for municipal supply of Almena of 0.15 cfs.
61.2	Unnamed tributary in NE¼SW¼ sec. 9, T. 2 S., R. 21 E., 10 ft downstream from highway bridge, 0.1 mile east of Almena.		.08	
57.6	Prairie Dog Creek in SW¼NW¼ sec. 2, T. 2 S., R. 21 W., 200 ft downstream from highway bridge, 2.4 miles northeast of Almena.	4.48		
55.8	Prairie Dog Creek in NW¼NW¼ sec. 1, T. 2 S., R. 21 W., at highway bridge, 3.5 miles northeast of Almena.	5.16		
54.2	Prairie Dog Creek in NW¼NW¼ sec. 6, T. 2 S., R. 20 W., 20 ft downstream from highway bridge, 4.5 miles northeast of Almena, 5.5 miles southwest of Long Island.	5.26		
52.9	Prairie Dog Creek in SE¼SE¼ sec. 31, T. 1 S., R. 20 W., 100 ft upstream from highway bridge, 4.6 miles southwest of Long Island.	5.19		
50.7	Prairie Dog Creek in SE¼NW¼ sec. 33, T. 1 S., R. 20 W., 200 ft downstream from highway bridge, 3.5 miles southwest of Long Island.	5.22		

Channel mile	Stream and location	Discharge, in cubic feet per second		Remarks
		Main stream	Tributary	
49.0	Prairie Dog Creek in NW¼NW¼ sec. 3, T. 2 S., R. 20 W., 500 ft downstream from highway bridge, 3.2 miles southwest of Long Island.	5.21		
46.7	Prairie Dog Creek in SW¼SE¼ sec. 27, T. 1 S., R. 20 W., 50 ft downstream from highway bridge, 2.0 miles southwest of Long Island.	5.04		
43.0	Prairie Dog Creek in NW¼NW¼ sec. 25, T. 1 S., R. 20 W., 100 ft downstream from highway bridge, at south edge of Long Island.	4.70		
41.3	Prairie Dog Creek in NE¼NE¼ sec. 25, T. 1 S., R. 20 W., 75 ft upstream from highway bridge, 0.9 mile southeast of Long Island.	4.95		Diversion from well field for municipal supply of Long Island of 0.2 cfs.
38.6	Prairie Dog Creek in SW¼SW¼ sec. 18, T. 1 S., R. 19 W., 100 ft downstream from highway bridge, 1.2 miles northeast of Long Island.	5.26		
33.0	Prairie Dog Creek in NW¼NW¼ sec. 9, T. 1 S., R. 19 W., 10 ft downstream from highway bridge, 2.5 miles west of Woodruff.	3.94		USGS gaging station 6-8485. Gage reads 1.96 ft.
29.7	Prairie Dog Creek in NE¼NE¼ sec. 7, T. 1 S., R. 19 W., 100 ft downstream from highway bridge, 3.8 miles west of Woodruff.	4.80		
27.0	Prairie Dog Creek in SE¼SE¼ sec. 31, T. 1 N., R. 19 W., 10 ft upstream from highway bridge, 3.8 miles west of Woodruff.	4.58		
25.9	Unnamed tributary in NE¼SW¼ sec. 32, T. 1 N., R. 19 W., 10 ft downstream from highway bridge, 3.3 miles west of Woodruff.		.15	
23.4	Prairie Dog Creek in NE¼NE¼ sec. 4, T. 1 S., R. 19 W., 25 ft downstream from highway bridge, 1.8 miles west of Woodruff.	5.34		

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